

REFLECTIONS ON SOCIAL AND ENVIRONMENTAL POLICIES SERIES/NO. 2

EQUALITY AND SOCIAL INCLUSION IN LATIN AMERICA: UNIVERSAL ACCESS TO WATER AND SANITATION

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Foreword

It is a pleasure to present the second publication in CAF's series entitled *Reflections on Social and Environmental Policies*, dedicated to the water supply and sanitation sector in Latin America. The goal of this publication is to promote a broad discussion of public policies on equality and social inclusion that can address deficiencies in drinking water and sanitation services, while achieving universal coverage of these public services in the region's urban areas, with a special focus on society's poorest and most vulnerable groups.

Recent studies done by CAF demonstrate the technical and financial viability of delivering sanitary safe water supply to all households in the region, with adequate pressure, 24 hours a day. It is also possible for every home, business and industry to collect and dispose their sewage to achieve public health goals, protect the environment and meet society's expectations. To reach these goals over a 15-year period, the region needs to make annual investments equivalent to 0.3 percent of its GDP, improve the efficiency of water supply and sanitation utilities, and by adjusting sector's governance.

However, CAF's experience shows that if these actions are taken on an exclusively sectoral approach, they would not have the expected impact. Solutions must be part of a broad vision that integrates and connects urban development, especially in areas of informal occupation of land. These solutions must be designed to reverse the deterioration of water and air quality in our cities and mitigate the impacts of climate change on water sources of many cities, where urban flooding and drought are increasing.

These regional aspirations were reinforced with the approval of the United Nations Resolution on The Human Right to Water and Sanitation in July 2010. In approving this, the U.N. established mandates that go beyond formal state-

ments and changes in countries' legal mandates. These mandates call for urgency in approving policies and actions to reduce the chronic inefficiency of water and sanitation utilities, and at the same time guarantee the mobilization and effective application of financial resources for investment. Implementing these mandates should generate action to benefit social sectors that are subject to unreliable public services, or simply have no access to water supply and sanitation services in their homes.

To promote a realistic dialogue on the policies and programs the region can undertake to achieve these objectives, CAF has invited contributions from key regional leaders with different perspectives and experiences related to the goal of establishing universal access to water supply and sanitation services.

Senator Eduardo Frei, ex-President of Chile, reviews his country's advances from the perspective of the highest level of government. José Antonio Ocampo, an economist, offers his thoughts on economic policy from the point of view of a distinguished academic figure, director of international development programs and former Minister of Finance of Colombia. Evamaría Uribe, an outstanding professional with international experience and former President of the Superintendency of Household Services in Colombia, offers her views from the position of public regulation of services. Dilma Pena, President of SABESP (Sao Paulo State Basic Sanitation Company) in Brazil, shows the path taken by this world-class water utility toward achieving universal water and sanitation services. Abel Mejía Betancourt, former Manager of the Water and Environmental departments at the World Bank, contributes his knowledge of the sector's situation and offers technical and financial proposals to make these services available to all.

To conclude, it is important to recognize the team of experts at CAF who have contributed extensively to this publication. I also would like to recommend its dissemination throughout CAF's member countries and to a wider community of water experts with the expectation that it will lead to a fruitful dialogue and concrete actions that we can support in the future.

L. Enrique García
CEO and President
CAF –development bank of Latin America

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Preface

The Reflections on Social and Environmental Policies Series

is an initiative of CAF –development bank of Latin America– and is led by the Vice-Presidency of Social Development. The first document in the series, entitled *Social Policies to Promote Citizenship and Social Cohesion*, was published in 2010. It focused on public policies related to organized participation in civil society, employment, job markets and the informal market. The goal of this publication is to encourage a regional dialogue on equality and social inclusion policies related to drinking water and sanitation in urban environments.

The thread that connects both publications is the recognition that the region has become more diverse and that governments are now following different guidelines and goals than in the past, clearly demonstrating a different focus on the role of the state. These reflections give us the opportunity to outline social and political priorities and analyze opportunities to achieve full citizen participation, especially among the most disadvantaged groups. At the same time, they allow us to appreciate new regional challenges and proposals for inclusion and productivity, the strengthening of institutions and building of new human capital.

As for the issue of water supply and sanitation, we recognize that it will not be possible to reach the goal of universal service by using only the traditional public policy tools. Universal access to water supply and sanitation therefore will require a different approach, while taking into account the different circumstances that exist today in the region.

In the general context of this document, we believe Latin America has an unprecedented opportunity to close current deficits of infrastructure and governance to substantially improve water supply and sanitation services in the region. To close such deficits, this book outlines public policies that build on the achievements of the past decades, while assigning the highest

priority to reducing inequality and the acute deficiencies in social inclusion that characterize the region.

As for the specific issue of water supply and sanitation sector, despite the advances reported by international statistics, 25 percent of Latin America's urban population still lacks or receives substandard services. This situation translates into low quality of drinking water, lack of adequate pressure in water distribution systems and poor collection, treatment and disposal of wastewater. In addition, most cities face serious infrastructure deficiencies in managing stormwater. As a result, these urban areas are suffering from increasingly deteriorating environmental conditions that have a direct impact on protecting water supplies from pollution, on human health and on the overall quality of life.

These shortages of water supply and sanitation systems are distributed asymmetrically throughout the population. In effect, there are two categories of citizens: those who enjoy a reasonable quality of service, in many cases equivalent to service quality of cities in the developed world, and those with unreliable or simply lacking these services in their homes. Aside from the serious deficiencies mentioned, the consequences of this discriminatory situation include health and sanitary risks to the population, often associated with overcrowded housing; social exclusion; expansion of the informal society and poverty, as well as an increase in crime, among other things.

As for the environment, this duality directly affects public health, particularly among the poorest and most vulnerable, showing up in higher rates of morbidity and mortality, as well as in diseases associated with water quality and other adverse environmental conditions. The incidence of these conditions among the poor is several times higher than among high income groups in the same cities. Moreover, poor maintenance and deterioration in the service infrastructure assets in this sector increase the negative impact on the quality of life, lower overall economic productivity and, in the face of unsatisfied demands due to structural inequality, a failure to meet expectations among the most disadvantaged.

The theme of this book, then, assumes even greater relevancy in keeping with the United Nations General Assembly's approval of the resolution declaring The Human Right to Water and Sanitation in 2010. Even though this United Nations resolution does not legally binding for member countries, it represents more than a new obligation derived from international agreements. As a result, this publication offers public policy arguments, national experiences and useful regulatory options for debating and changing legal and regulatory frameworks, achieving institutional progress and defining investment programs with the goal of creating positive actions to benefit sectors of society that receive unreliable water and sanitation services in their homes, or simply have no access to these services at all.

In recent years, several Latin American countries have changed and updated the legal frameworks governing these services. Some have already recognized

the human right to drinking water and sanitation services in their legal provisions. Nevertheless, the real challenge – beyond including this deferred obligation in their legal systems – lies in defining an action plan for public policy, institutions and investments that translates into actual implementation of universal water and sanitation services within the realities of each country.

Universal access to these services is a developmental goal that CAF supports throughout the region. For that reason, CAF includes investment projects within a comprehensive vision of the water cycle and promotes the expansion of water supply, sewerage and wastewater projects, focusing on the most vulnerable people. Simultaneously, CAF promotes strengthening regulatory and institutional frameworks to improve efficiency, transparency and operating performance of service providers.

CAF has extensive experience in water and sanitation projects, having financed more than 80 of these projects since 1994, with loans of about USD 4 billion. This publication is supported not only by CAF's own experience in this field, but also by the analyses it developed for the 6th World Water Forum held in Marseilles, France in March of 2012, as well as its own reviews and analysis of the infrastructure sector. CAF presented reports on Infrastructure in the Comprehensive Development of Latin America at the Summits of Ibero-American Heads of State held in Asuncion, Paraguay in 2011 and Cadiz, Spain in 2012.

In keeping with the spirit of this series, CAF asked for contributions from regional figures with outstanding experience in public policy related to the water supply and sanitation sector. Along with support from CAF officials and the water knowledge team, these selected group of contributors offer their personal views and experience to reach universal water and sanitation services in the region from four different perspectives. Senator Eduardo Frei provides the view of a statesman who, as President of Chile, launched a true revolution in Chile's sanitation sector, allowing the country's to reach levels of water supply and sanitation services that are comparable to OECD countries. José Antonio Ocampo offers the perspective of a well-known economist who held high-level posts in international organizations and served as Colombia's Minister of Finance. Ocampo discusses policy options and the economic rationale for greater inclusion and the social and fiscal consequences for countries to reach the goal of universal services. Evamaría Uribe, who has played an outstanding professional role in international organizations and served as President of the Superintendency of Household Services in Colombia, provides a discussion of the regulatory implications of implementing the human right to water and sanitation.

Dilma Pena, President of SABESP, the Sao Paulo State Water and Sanitation Company, the largest in Latin America, describes the path followed to achieving universal access to water and sanitation services through long-term programs and efficient financial management.

This publication is directed at three audiences. The first is made up of individuals who are not specialists in water policy, who work in ministries of economy, finance and planning and who are responsible for economic and social policy formulation. Other members of this same group are sectoral ministries directly responsible for water management in areas associated with the environment, as well as urban and rural development. The second audience consists of agencies that specialize in water, especially those in charge of water supply and sanitation services, plus government offices working in regulation, sectoral control and water resource management. The third group includes academics, professionals and civil society organizations that are interested in water issues. With such a diverse audience, it is expected that this document will contribute to policy dialogue and foster analytic thinking across various sectors that play a role in public policymaking and make decisions about allocation of public funds for water supply water and sanitation.

Public Policies to Promote Equality and Social Inclusion: Toward the full participation of citizens in Latin America

José A. Carrera

This chapter discusses the favorable situation facing Latin America at the beginning of the 21st century, and the important challenges that must be resolved, including the reduction of poverty and inequality, growth, social inclusion, as well as critical topics such as investment in human capital, the creation of quality jobs and infrastructure investment for productive development. We analyze how CAF's social and environmental policies align with the urgent need for equality and inclusion in the region, and how they line up naturally with the goal of achieving universal water and sanitation services. We approach this within the context of growing urbanization and the role of the cities, as well as the issue of youth as both a positive demographic factor and as a challenge.

Latin America's Outlook at the Beginning of the 21st Century

From reducing poverty to reducing inequality

The second decade of the 21st century offers a great opportunity to advance the development of Latin America in terms of equality and inclusion. For many years, we have not seen a continuous period of economic and political stability like this one, as evidenced by the relatively high levels of economic growth and by the existence of democratic governments for more than two consecutive decades¹.

1. CAF's *Vision for Latin America 2040. Toward a more inclusive and prosperous society*, provides an in-depth analysis of the region's economic evolution and compares it to that of Asia. For more information, see the publication.

Table 1.1: **Economic Indicators for Latin America and the World**

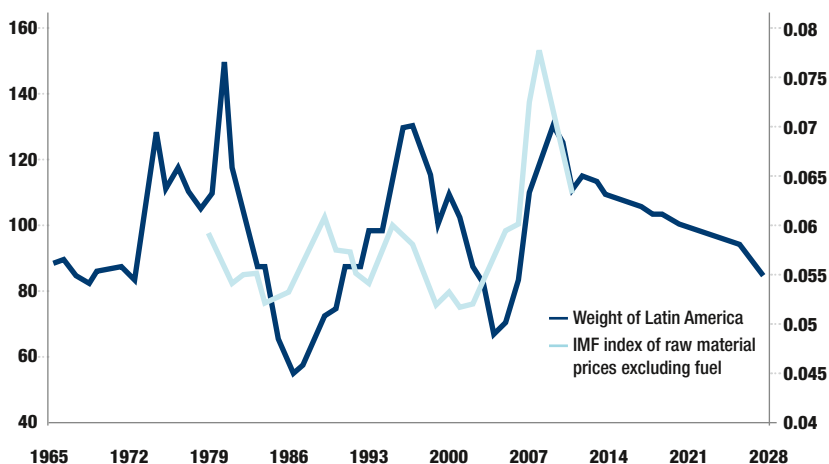
	Annual Average Growth Rate				
	1870-1913	1913-1950	1950-1973	1974-1998	1999-2008
Latin America GDP	3.5	3.4	5.4	3	3.4
World	2.1	1.8	4.9	3	4
GDP per capita in Latin America	1.8	1.4	2.6	1	2.1
World	1.3	0.9	2.9	1.3	2.8
Latin America's share of world GDP (percent, at end of period)	4.4	7.8	8.7	8.7	8.1
Ratio of GDP per capita in Latin America / World GDP per capita (percent, at end of period)	97	119	110	96	95

These figures are the subject of great debate and are based on long-term estimates of Purchasing Power Parity (PPP) using longer term historical studies, such as those of A. Maddison. The estimates of this study over the last 40 years can result in a smaller proportion of GDP per capita for the region compared to the rest of the world.

Source: CAF 2010, *Vision for Latin America 2040. Toward a more inclusive and prosperous society*

To a large extent, this stability and economic growth have been the result of sound economic policies and an improvement in the terms of trade. The improvement in Latin America's terms of trade is due principally to an increase in the price of exported goods, and not to changes in the productive capacity (Graph 1.1), which means there is still room to increase value

Graph 1.1: **The Weight of Latin America in World GDP vs. Raw Material Prices**

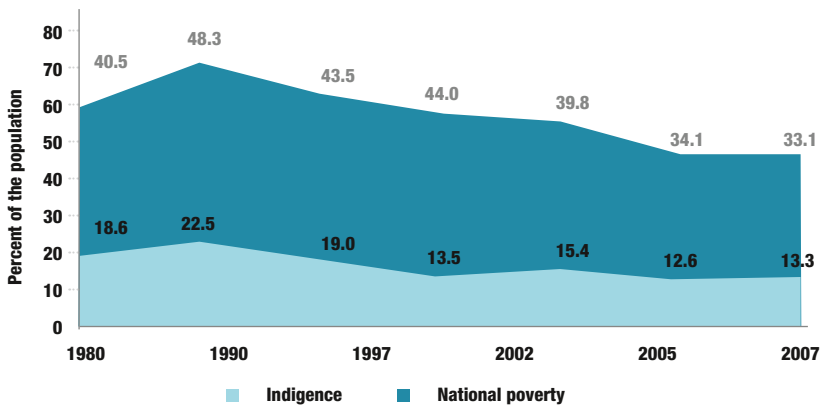


Source: CAF 2010, *Vision for Latin America 2040. Toward a more inclusive and prosperous society*

added in goods and services produced, thereby avoiding a “re-commodification” of exports.

At the same time, between 1990 and 2009, Latin America has achieved an important reduction in poverty and indigence, allowing more than 40 million people in the region to emerge from these conditions. Nevertheless, the levels of poverty and indigence in Latin America still remain high and are unacceptable.

Graph 1.2: **Latin America and the Caribbean. Evolution of Poverty and Indigence (1980-2009)**



Source: CAF – UN Habitat, Sixth Urban World Forum, Naples, Italy, 2012.

The reduction in poverty was also accompanied by a decline in inequality, but we still has a long way to go. Even so, it is worth noting that this tendency in the reduction of inequality has not been a clear or permanent one.

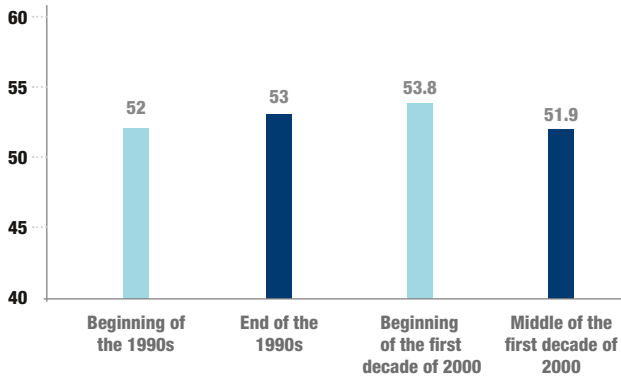
During the first half of the period (1990-2002), most of the countries in the region saw a rise in inequality, but this trend tended to reverse itself after 2002, as shown in Graph 1.3.

Part of the reduction in poverty and inequality can be explained by conditional transfer programs in Brazil (Bolsa Familia or Family Allowance), opportunities in Mexico and other programs in countries like Argentina (Jefa y Jefes or Program for Unemployed Male and Female Heads of Households) and the Bolivarian Republic of Venezuela (Social Security and Misiones or food banks in poor neighborhoods).

Despite the important advances made in reducing poverty and inequality, Latin America is still considered the region with the greatest inequality in the world. Nevertheless, we should also recognize that it is the only region were inequality has been reduced in the majority of its countries (*The Economist*, 2012).

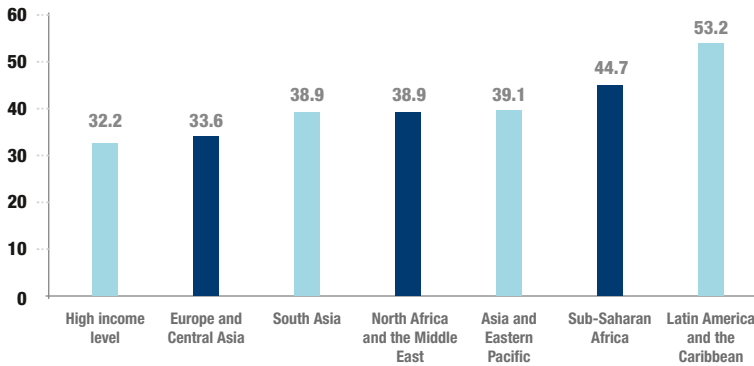
The high levels of inequality seem to have contributed to a climate of social dissatisfaction and rejection by citizens. And this concern/restlessness had be-

Graph 1.3: Evolution of the Gini Coefficient (percent)²



Source: CAF 2010, *Vision for Latin America 2040. Toward a more inclusive and prosperous society*

Graph 1.4: Regional Gini Coefficient (percent), 2004



Source: CAF 2010, *Vision for Latin America 2040. Toward a more inclusive and prosperous society*

come even more evident due to not only the power of new and new communications technologies, but also because of substantial growth in social networks and in the availability of new communications and information systems.

Structural inequality slows down development. A model for economic development that reduces poverty but maintains a high level of inequality is not sustainable. A high level of inequality, among other things, limits the development of a strong middle class with enough purchasing power to stimulate demand and promote growth in the region's productive capacity.

2. Study carried out by CAF and UN Habitat on inequality in 18 countries and 250 cities in Latin America (2012).

Economic Growth with Equality and Social Inclusion

CAF's vision for sustainable development that allows for sustainable and high-quality growth is based on four elements that must be advanced simultaneously. First of all, we need equality and social inclusion so that the largest possible number of people will feel the benefits of development, generating an environment of social peace and cohesion. Secondly, macroeconomic stability in order to generate the necessary conditions for investment and growth. Third, microeconomic efficiency to promote productivity, competition and value added for regional production. And fourth, a balanced environment that will ensure the appropriate use of environmental and natural resources, taking into consideration the inter-generational rights and responsibilities with respect to the space we live and the resources we enjoy. This must be accompanied by investment in all types of capital: to promote a transformation in the productive sector, to allow for a practical role in international affairs and for strengthening the quality of regional institutions.

Figure 1.1: **CAF's Vision of Sustainable Development.**



Source: CAF.

In this context, inequality is defined as the difference between various social groups in terms of their access to and ability to enjoy the wealth of a particular society; the income stream; employment opportunities; basic services such as health, education, housing and infrastructure, and in general access to social well-being during a particular time period.

From this perspective, Latin America is a segmented and fragmented society, where only a few have access to all the benefits of development, while the majority either lack access to these benefits or, if they have some access, only receive lower quality benefits.

It is not by chance that the continent with the greatest inequality is also the most violent continent, with high levels of crime, personal insecurity, corruption and narcotics trafficking.

Latin America has the highest crime levels in the world. According to reports by the United Nations ⁽³⁾, the region has a rate of 26 homicides per 100,000 inhabitants. This is two times greater than the general homicide rate and accounts for 40% of all homicides worldwide. At the same time, several developmental agencies ⁽⁴⁾ report that crime is on the rise in the region. Between 1980 and 2006, criminal acts rose from 13 per 100,000 inhabitants to 25, and is expected to rise as high as 30 per 100,000 people by 2020 unless timely action is taken (Sanjuan, 2012).

This situation is neither sustainable nor desirable over time. CAF, as the development bank of Latin America, supports its member nations in the implementation of their own development strategies in any way that makes it possible to reduce these inequalities and strengthen existing social cohesion, while at the same time increasing productivity in their economies.

These are precisely the strategies and options that the region's political and economic figures must define, working in conjunction with civil society. Therefore, it is necessary to review the behavior of inequality using scientific data that allows us to understand the current situation in detail, not only in terms of general characteristics (at the country level) but also in more specific terms (at the city level).

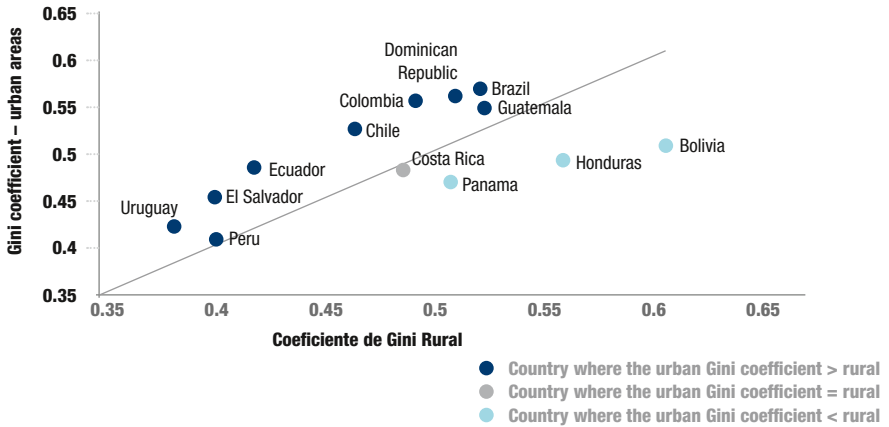
We need a more thorough study of inequality in our countries, especially with regard to the determining factors underlying inequality and the dynamic behavior of these factors over time. For the time being, studies carried out by CAF and UN Habitat covering inequality in 250 cities and 18 countries in Latin America have produced valuable information that can be used in designing strategies and policies to reduce inequality.

For example, the studies found that the highest levels of inequality are at the urban level, except for Panama, Honduras and Bolivia (Graph 1.5). This demonstrates the ever expanding role of cities as areas requiring special attention.

3. United Nations Development Program, 2012, United Nations Office on Drugs and Crime, 2011.

4. World Bank, CAF, Inter-American Development Bank, United Nations Development Program.

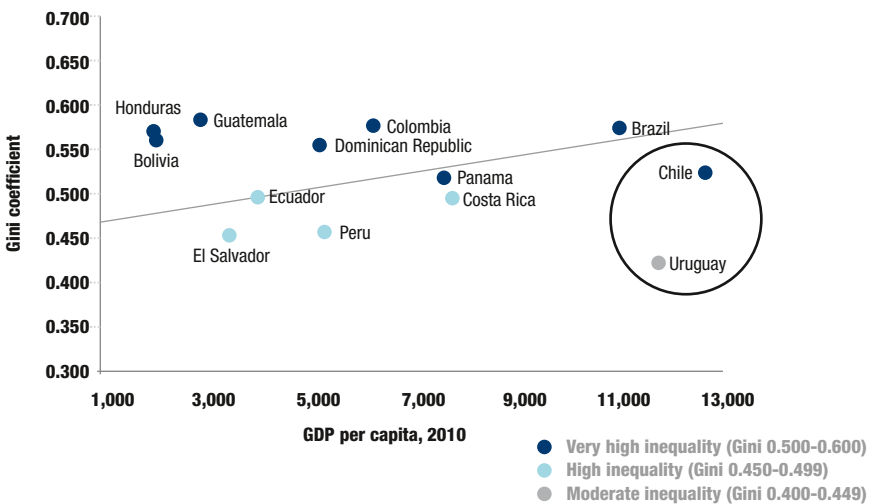
Graph 1.5: **Inequality in Rural and Urban Areas. Income Based on the Gini Coefficient.**
Selected nations (2006-2010)



Source: CAF – UN Habitat, Sixth World Urban Forum, Naples, Italy, 2012.

But it is also noteworthy that inequality apparently is unrelated to the per capita income level in these countries. So we see a high level of inequality not only in societies with high per capita income, but also in those with low per capita income (Graph 1.6). This means that efforts must be applied consistently throughout the region, without regard to the level of development or relative income level.

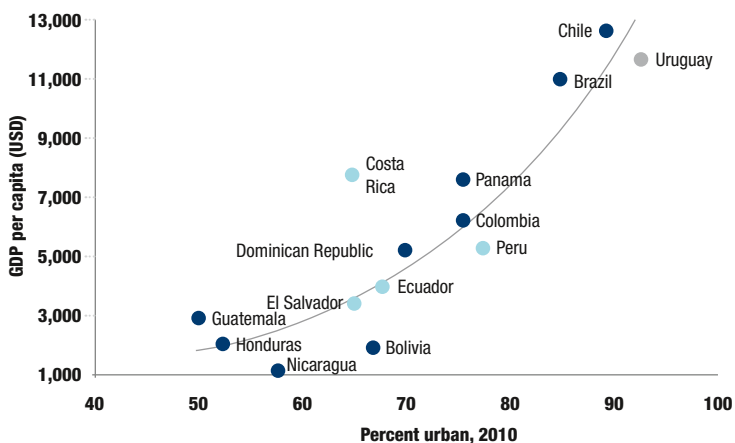
Graph 1.6: **Wealth and Inequality**



Source: CAF – UN Habitat, Sixth World Urban Forum, Naples, Italy, 2012.

Even though the level of urbanization observed in Latin America has no correlation with the observed income level of developed countries with the same level of urban concentration, we can see a direct relation between the degree of urbanization and per capita income. With a higher degree of urbanization comes higher per capita income. Living in cities seems to help increase income among the inhabitants. (Graph 1.7)

Graph 1.7: **Urbanization and GDP – Inequalities Income Based on Gini Coefficient.**
Selected countries (urban 2006-2010)



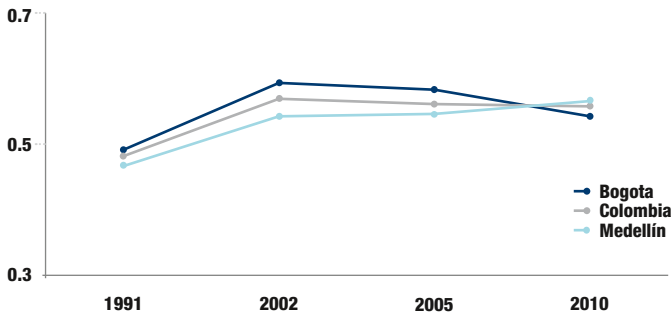
- Very high inequality (Gini 0.500 – 0.600)
- High inequality (Gini 0.450-0.499)
- Moderate inequality (Gini 0.400-0.449)

Source: CAF – UN Habitat, Sixth World Urban Forum, Naples, Italy 2012.

On the other hand, there does not seem to be a very clear relationship between the level of urbanization and the degree of observed inequality. There are highly urbanized countries with a high degree of inequality just as there are less urbanized countries that also have a high degree of inequality. While efforts to reduce inequality should be concentrated in urban areas, action is also needed to reduce it in rural zones.

But even though inequality at the national level may show a certain tendency, this may differ when we analyze inequality in the cities, as was the case of Colombia and Medellin in the period from 1991-2010 (See Graph 1.8, Page 21). In this case, the Gini index – and therefore inequality – at the national level and in the cities was growing until 2002, when the trend was reversed and began to fall at the national level and in some cities. But this did not happen in Medellin, where inequality became more pronounced. National averages can sometimes mask different and undesirable trends at the city level.

Graph 1.8: **Examples of Gini Coefficient by City**



Source: CAF – UN Habitat, Sixth World Urban Forum, Naples, Italy, 2012.

New Challenges, New Models and New Policies to Promote Greater Economic Growth

The world in general is passing through a period of income concentration. More than two-thirds of the world's population live in countries where income disparity has increased since 1980 (The Economist, 2012).

This concentration of wealth phenomenon also affected Latin America in the first part of the 1991-2010 period. But between 2002 and 2010, the trend was reversed and important advances occurred in reducing income inequality, as measured by the Gini coefficient.

Among the factors that explain this change are the following: appropriate macroeconomic policies; a series of conditional transfer programs benefitting the most disadvantaged sectors of the population; improvements in pension programs along with the tendency to universalize these programs, and a favorable international environment that improved the terms of trade, generated a more favorable fiscal position and allowed job demand to increase.

Nevertheless, to strengthen and accelerate the process of reducing inequality, we must confront new challenges. Among the most important are increasing investments in human capital and in economic and social infrastructure; raising productivity among regional economies and contributing to the strengthening of institutions, which will permit improved regulation and greater competition among the different economic players.

These challenges must be faced within the framework of the realities existing in Latin America at the beginning of the 21st century, which are a high level of urban development and the expanding role of the region's youth in creating wealth and regional well-being.

Investment in Human Capital: Beyond equal opportunity, toward equal competency

Equal opportunity is a necessary but insufficient condition for social solidarity. It is probably time to think of new ways to address this issue. For example, to move from equal opportunity to equal competency, in terms of educational and professional training.

To better illustrate this topic, take the following example: Two young people have been offered a job or a scholarship. One has been educated with the best available skills and has been exposed to information and communications technologies, while the other has not had this training. Even though both have the “same opportunity,” it is very likely that the one who benefitted from a better quality education will get the job or the scholarship.

This notion does not just apply to Latin American nations. Recent studies in the United States have shown that the gap between the results of tests taken by poor and rich children is about 30-40% larger than it was 25 years ago.

Once again, having “equal opportunity” is not enough. In this area, Latin America needs to make an effort to level the playing field in terms of training its citizens to raise the level of competency or skills.

Aside from the questions of equality that this entails, improving education and training in the region will help produce the structural conditions leading to sustained economic growth, as well as quality growth.

Creating Quality Job Opportunities

A key element in the challenges we face has to do with creating structural conditions that allow for improvements in citizens’ well-being, especially among the most vulnerable members of society. At the heart of these structural changes is strengthening the ability of all citizens to access labor markets and allowing them to help create and expand national income and social well-being.

This situation is directly related to the issue of building equal educational and training competency as part of comprehensive national development. The more we improve education and training programs for average Latin Americans, the more we will have better human capital that will be able to add greater value to work and improve national productivity.

Better Infrastructure for Developing Human Capital and Productivity

These previously stated challenges, which are clearly important by themselves, will only be overcome when the material conditions exist to achieve this. Providing the region with a larger and better economic and social infrastructure will lay the foundation for building a sustainable development model. As we will see in an analysis to be discussed further on,

it is believed that one of the reasons Latin America's development pattern and dynamics have fallen behind those of Asia's most successful nations has to do precisely with the lower level of resources dedicated to training human capital, as well as insufficient efforts to build a solid economic infrastructure that could contribute substantial gains to productivity.

Although the opportunity to increase added value exists throughout the region, it is no less true that the diversity among the countries and the subregions indicates that, at the outset, there are different dynamics associated with their comparative advantages.

An additional challenge will be to put together a set of proposals designed to increase added value in national production, especially for exportable goods and services. Selling more manufactured products with greater knowledge content in international markets will require more sophisticated production processes, which in turn will demand a more competent and better qualified workforce. This new reality in the labor market will demand improved professional training programs, which should increase the quality of regional education.

We believe this can be achieved by making simultaneous investments in social and economic infrastructure. Doing so will advance the formation of the necessary human capital and improve the structural bases of productivity. Isolated investments in only one of these components does not seem to be enough.

This infrastructure investment must also be accompanied by investments to improve information and communication technology and increase access to these sectors. A lack of accessibility will not only limit productivity increases, but also perpetuate inequality of opportunities and competence.

It is particularly important to recognize that water and sanitation, the basic themes of this document, are necessary for good hygiene, health and productive activity, and as such are key elements in building equality and social inclusion. An individual who is ill or undernourished cannot take proper advantage of education and training opportunities, and as an adult, will not be a highly productive worker.

This is why a more egalitarian and inclusive vision of Latin America must include policies for universal water and sanitation services. These policies are not just based on a belief in what is right, but on the knowledge that they will generate benefits for society and lay the bases for inclusive development.

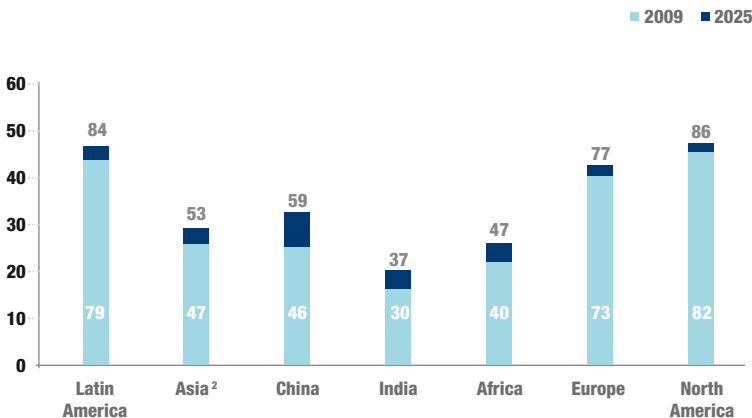
The Challenges in Context

Urbanization and the role of the cities

Latin America is the most urbanized region in the world. Four out of every five people live in cities, which means that we must give priority to these

areas within our vision for sustainable development. As of 2010, 25% of city dwellers lived in slums and in unstable conditions. This figure fell from 34% in 1990, but still is too high.

Graph 1.9: **Almost 85% of the World Population Will Live in Cities in 2025**
Population Living in Urban Areas ⁽¹⁾, 2009 and 2025 (percent)



1. Urban population according to national figures

2. Excluding China and India

Source: McKinsey Global Institute, taken from the United Nations Population Division Department of Economic and Social Affairs.

Of the 110 million people who live in slums, 18% lack access to a sewage system and 10% cannot obtain clean water. The lack of water – in terms of sufficient quantity and quality – forces slum dwellers to use questionable sources of water, such as water trucks that come to their neighborhoods. They have to pay ten times more for a cubic meter of water from a truck than they would from a municipal water line. Moreover, the cost to families gets even higher since this water has to be boiled, purified and/or filtered at home to avoid the risk of contracting diseases, especially gastrointestinal illnesses and diarrhea, which are associated with high rates of malnutrition and death, especially among infants.

This lack of attention in meeting the most basic needs of large population groups and providing them with basic dignity obliges us to examine the priority actions that must be taken in coming years to effectively bring these services to tens of millions of people who today do not enjoy this right.

The annual cost for providing total coverage of water and sewage services over the next 20 years would not exceed 0.3% of GDP (CAF, 2012). This figure is entirely manageable for the region and will produce important benefits in terms of health, productivity and, above all, an improvement in the perception that the most urgent needs of the most helpless members of society are being met.

However, the lack of access to basic services is not the only issue affecting the well-being and quality of life, especially for those living in the slums of Latin America. These citizens lack property titles and suitable housing, both because of low-quality construction and because of the areas where their homes are located. These are often highly vulnerable areas whose situation is exacerbated by seismic activity and flooding caused by the effects of climate change.

And the growing vulnerability of these neighborhoods to the effects of climate change is not only limited to housing. Indeed, it covers all aspects of existing infrastructure and the potential impact on the communities in cities. This has important implications for efforts to protect not only the lives of people who live in these risky areas, but also to protect their current and future investments, so that society's efforts are not lost. Eventually, this could mean that relocation programs should be implemented so that people could be moved to safer and more resilient areas.

This notion underscores the importance of working to increase the resilience of cities and countries with a view toward the new climatic reality we will be experiencing in the coming years.

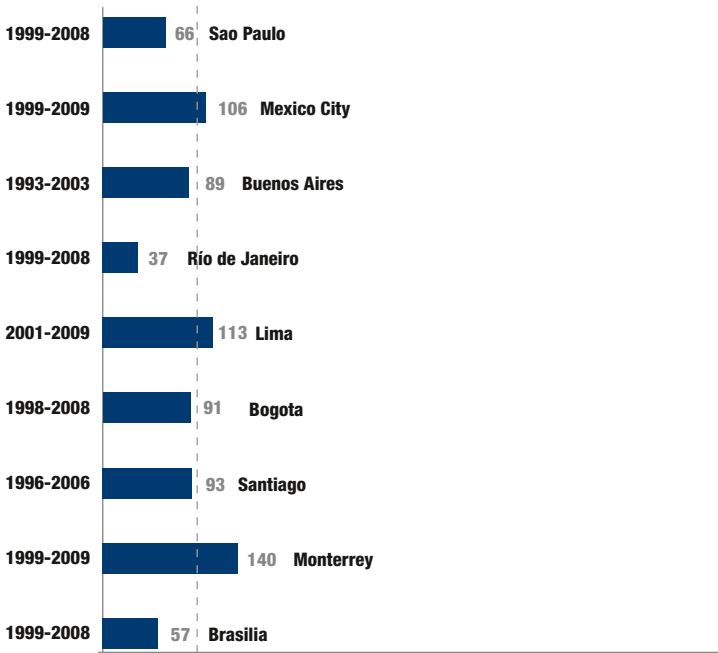
Following this same line of thought, we can also mention other structural issues - like urban transportation systems - that impact our health (due to vehicle emissions), the quality of life and well-being, as well as the productivity of cities.

These elements are not only part of the problem of equality and appropriate distribution of society's benefits, but also affect the heart of the cities' productivity structure, as well as their future growth and development. In other words, if we do not resolve these problems related to the quality of life and well-being of citizens, the dynamics of growth and development could be affected, producing results that are delayed and less satisfactory than what we hoped for.

Latin American cities not only hold 80% of the region's population, but they also are the physical sites where an important share of goods and services are produced. Thus, it is imperative to focus on the cities, both because of the potential impact of benefiting a large number of people and because of their importance in increasing production. Of course, we cannot neglect rural areas, since these are generally the greatest centers of poverty.

According to a recent McKinsey study, the 200 largest cities in Latin America will generate 65% of GDP between 2007 and 2025.

Graph 1.10: **The Majority of the 10 Largest Cities Have Shown Economic Growth that is Slower than the Country Where They are Located**



GDP growth in cities relative to the national average
Index: 100% = growth of national GDP, %

Source: National and local statistical offices; McKinsey Global Institute Citiscope (1.1).

However, in contrast to what has occurred in the past, the economic growth rates of some important cities in the region have been lower than growth rates in their own countries. Effectively, between 1991 and 2009, six of the most important cities in Latin America have grown less vigorously than their respective countries. This has important implications. In the past, cities were considered the engines of national growth. But now, it seems that they have become a burden that is slowing down the rhythm of potential growth in their countries.

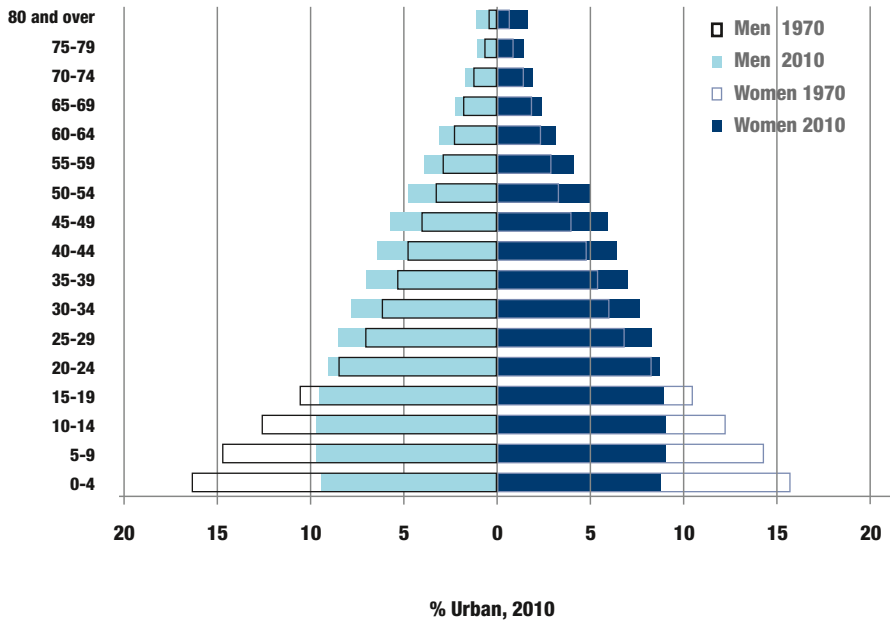
This reflects the low levels of productivity and international competitiveness that exist in the region. As a result, regional development strategy over the next decades should focus on improving productivity in the major cities. And to increase productivity in Latin America, the cities must make major

investments in economic and social infrastructure, as well as in building and strengthening their existing human capital.

Youth, Training Programs and Employment: From demographic bonus to demographic burden

A second aspect of Latin America's reality has to do with its youth. The region is both highly urbanized and very young. According to United Nations studies, the Economically Active Population will continue to grow steadily until it reaches a peak between 2020 and 2025. Of course, this could offer a tremendous opportunity, if and only if the region takes advantage of this potential demographic bonus and offers real employment opportunities to these young people so they will join the workforce.

Graph 1.11: **Latin America and the Caribbean.**
Population structure by sex and age group, 1970 and 2010.



Source: Data from CEPALSTAT (ECLA) and UNESCO. Data obtained in May 2011.

Still, the reality of the situation and the news are not encouraging. According to a poll conducted by Latinobarómetro in 2011, on average, 21% of all Latin American youth under 30 years of age neither study nor work. Even under the current excellent economic conditions in the region, youth unemployment averages 15% while general unemployment stands at around 7%.

These figures, however, disguise the types of low productivity jobs that are generally available to young people living in the poorest neighborhoods, especially for young women⁵.

For this reason, the design of policies that aim to achieve equality in development must take into consideration the region's youth and their increasing role in shaping a model that takes advantage of this opportunity and converts the young population into a demographic bonus.

Final Thoughts: Moving toward a new citizens' agenda

From inequality and exclusion to productivity and inclusion

Latin America is on the path to making its development models devote greater attention to the problems of inequality and exclusion. To achieve this, it is favoring the training of human capital and infrastructure investment. In this respect, we need to insist that this course of action include a focus on subsidies, as part of a temporary plan to achieve universal coverage of goods and services.

Increasing value added in national output

Actions aimed at reducing inequality and raising productivity must also be accompanied by a strategy to increase value-added production, both for exports and for goods sold on domestic markets. This is consistent with improving equality by creating quality employment and generating a better distribution of wealth.

A new citizens' agenda that will generate confidence and strengthen the process of obtaining accurate financial information from institutions

In order to take these initiatives, all the key players in society - the government, private sector and civil society - should join forces to create a national agenda. And to complement this, we will need a government commitment to organize and strengthen existing institutions, so that they will be able to handle the tasks that lie ahead.

Unless the community has a general perception that society is working actively to reduce inequality and exclusion, there will be no change in the bad

5. Beyond this context, there is apparently a tendency to see a greater presence of young people working in service industries and the knowledge economy.

feelings toward and disagreement with the “staus quo.” This perception must be accompanied by real actions that change the social agenda, as well as projects and public works that are implemented harmoniously.

CAF encourages these ideas to contribute to the debate, to place these issues on the forefront of each national agenda, to make obvious issues and problems more visible and to help create a consciousness of the important challenges we face as a region.

We believe this document can be a tool for governments and other authorities to support decision making and achieve the structural changes required.

The problems associated with urbanization in Latin America, the reality of the slums, the lack of basic services and vital infrastructure, the problems of urban transportation and their solutions are not just a question of equality, but point to the heart of the entire process of economic growth and development in Latin America in the coming years.

Equality contributes to creating an atmosphere of social peace and can reduce the conditions that generate violence. But achieving equality requires a solid social structure that drives the actions we need to move in this direction.

Building social capital

In addition to the challenges we’ve mentioned, it is appropriate to consider the opportunities for building greater social capital. This process also seeks to promote debate on how to achieve greater social participation, how to help develop citizenship and how to create the conditions for achieving greater social solidarity.

Building greater social capital seems to be rooted in generating more confidence among the different players in society. This confidence is derived, among other things, from improved popular perception of justice and equality in existing social relations. This justice and equality are related, to a great degree, with the the perception of how society’s income is distributed.

From millenium goals to new regional challenges

Latin America is moving rapidly toward achieving the Goals of the Millenium. Nevertheless, if we look ahead, these goals fall short and do not reflect the specific local needs of the immediate future.

For example, setting the goal of placing a secure water source less than 100 meters from a residence doesn’t deal with the reality that families need water in their homes, not 100 meters away. Moreover, a family requires water that meets international standards of quality at home 24 hours a day.

Investments and financing for expanding water and santiation services

We’ve mentioned previously that the annual cost of providing universal water and sewage services over the next 20 years would not exceed 0.3% of GDP, which is a perfectly manageable figure for the region. At the same time,

we must improve the efficiency of companies providing these services through sustained efforts in sectoral governance or management.

By governance we mean establishing rules of the game and clear institutional roles, providing reliable financial and operating results to the public, and social participation. All of these elements are inherent in the agenda for building social capital. Finally, we should stress the comprehensive nature of water operations, which include protecting the sources of water, related water services, sewers and drainage, sewage treatment, urban development and “informal” neighborhoods built on unstable land, as well as the vulnerability of these urban residential zones to natural disasters and climate change.

Challenges Related to Drinking Water and Sanitation: Water and sanitation services in the informal urban society

Abel Mejía Betancourt

The Urban Context

To fully appreciate the challenges Latin America faces in supplying universal drinking water and sanitation services to the region, the problem must be seen in terms of the dynamics of urban population growth over the last 50 years. During this period, the population of cities grew at a dizzying rate, rising from 64 million in 1950 to 384 million in 2000 and to 458 million in 2010. Even though the growth rate has fallen significantly, projections over the next two decades indicate that the urban population will grow by 24%, reaching 566 million people in 2030 (ECLAC, 2010).

Another side of this problem is the data and projections related to the extent of occupied urban land. The expansion of urban land areas is proceeding at a faster rate than the population, part of a global phenomenon accompanied by new and urgent needs for housing, transportation and electricity, as well as an exceptional demand for drinking water, sewage systems, sewage treatment plants, urban drainage systems and flood control. History clearly teaches us that rapid transformations in land use and occupation are neither orderly nor free of conflicts. The capacity to develop urban land lags far behind demand, and generally is not able to respond satisfactorily to the burgeoning demand for urban housing and public services.

For Latin American countries, there is no doubt that creating adequate infrastructure to meet the demands of this expansion in urban population has been a formidable challenge in terms of

investments, creating effective institutions for running the various aspects of daily life, as well as in society's ability to adapt to new ways of living, new means of production and the ways in which urban spaces are utilized. At the same time, because of opportunities for jobs in both the formal and informal economies in the cities, pressure to expand informal settlements is growing.

Analysis shows that growth of the cities is an essential factor for nations in achieving social progress and a key driving force in raising the level of economic development. But at the same time, accelerated urbanization usually occurs among low income nations and stabilizes when they reach the threshold of USD 5,000 per capita (The World Bank, 2008). As a result, the imbalances between supply and demand for housing and public services become sharper when countries have to deal with rapid urban development at a time when they have very low income levels and a limited ability to manage these issues.

Countries in Latin America with low per capita incomes and a large share of their population living in rural areas are experiencing rapid urban growth (Guatemala, Honduras, Nicaragua, El Salvador and Bolivia), and are feeling the consequences in the form of rapid growth in informality and violence, as well as increasing environmental degradation.

There are other, more urbanized countries with relatively higher income levels but with lower rates of urban expansion. These countries are working on reducing their current deficits in housing, basic services and the quality of life in general, and include Brazil, Argentina, Mexico, Peru, Venezuela, Colombia and Ecuador. In 2005, only Uruguay, Chile, Costa Rica and several Caribbean islands had informal housing indices of less than 10% (UN Habitat, 2009).

To believe that Latin American cities will require several decades to resolve their internal disparities with respect to housing and infrastructure services is an absurd hypothesis.

One response to this problem takes the form of policies that try to restrict the migratory flow from rural area to the cities. But history shows that these policies, for the most part, have resoundingly failed. The main reason for these meager results is the kind of policies implemented. They failed to compress the uncontrollable force of economic incentives that move people to the cities in search of opportunities for work and better income. People move to the cities despite facing problems such as a high cost of living, crime and lack of personal safety, several hours a day spent in public transportation and a high cost to personal health as a result of environmental degradation in the region's informal communities.

Another response to this problem has been through policies aimed at consolidating urban development and strengthening the advantages of urban

living. These policies are more realistic but their main challenge lies in efficiently confronting the income distribution problem. They try to reduce the high levels of social and economic inequality in some Latin America cities, reflected in the highest Gini coefficients on the planet. For example, Sao Paulo, Belo Horizonte, Fortaleza and Bogota have indices higher than 0.60, which is considered extremely high in international comparisons. Other cities in the region, such as Quito, Buenos Aires and Mexico City, have indices between 0.50 and 0.59, which are relatively high levels. In comparison, New York City and London have indices of 0.48 and 0.32, respectively (UN Habitat, 2009).

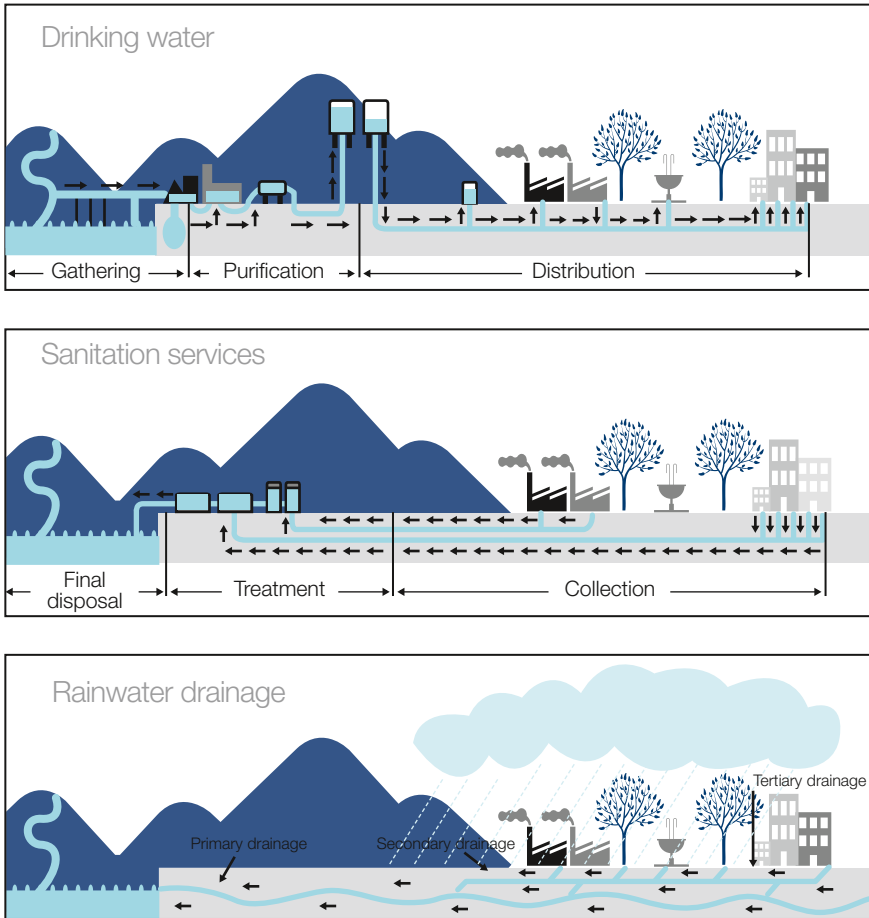
One clear expression of the low quality of urban life is found in the economic inequality and social injustice affecting all aspects of citizens' lives, and related issues such as high levels of personal insecurity, institutionalized violence and corruption. So, even though there undoubtedly have been advances, as in the reduction of extreme poverty, important gaps still exist because growth in the cities has overtaken the institutional and financial capacity of regional nations to remedy the situation. The mismatch between urban growth and infrastructure in the cities has left 27% of the population living in precarious housing conditions, with limited access to essential services and serious problems related to land ownership. In addition, these communities live in a seriously degraded environment.

As for water, regional countries during this same period have tried to respond to the growth of their cities by assigning priority to extending their water pipelines and sewage networks to meet the needs of new urban residents. In practically all these countries, they've achieved coverage reaching higher than 90% for water and 80% for sewage systems. But at the same time, other aspects of urban water infrastructure have been left behind, such as drainage systems for rainwater, sewage treatment plants and trunk lines needed to carry drinking water to communities and to move sewage. And as this urban growth continues, rivers, lakes and urban aquifers in many cases have been impacted by environmental degradation, endangering water quality to the point that they do not meet safety norms for supplying water to the cities.

Water Management in Urban Areas

The main challenges to water management in Latin American cities revolve around three problems: informal occupation of urban land (squatters); the resulting precarious – and sometimes dangerous – condition of housing and the low quality of public services, particularly water and sanitation services, and environmental deterioration, especially in terms of air quality, pollution of water supplies and solid waste management.

Figure 2.1: **The Urban Water Cycle**



Source: Uzcátegui, *Urban Water* (2012)

But water management in the cities does not view these problems comprehensively, and the tendency is to look at them in different segments and separate them into three large components: drinking water, sanitation services and water drainage systems (Figure 2.1) Reality is much more complex, because water management is intimately related to the forests, mountains and aquifers that supply cities with water, as well as with management of the soil and land where water flows and is absorbed and with all the waste products of human activity that are thrown into natural drainage areas. Also, the water and sanitation networks serving consumers must be able to respond to their immediate requirements, which means

they must have an infrastructure capable of meeting demand at specific points in the system at the right time, with the proper quality of water, and with constant volume and pressure.

These services generally come under the responsibility of multiple jurisdictions. For example, in Latin America, drinking water and sewage systems are handled by one company. But in many developed countries, like the United States, Japan and Germany, these services frequently are managed by different institutions, usually within the area of local government. Rainwater drainage systems are typically the responsibility of city governments, but they do not have the legal jurisdiction (or the capacity) for managing urban flooding. This can only be managed efficiently by a watershed district or regional water authority, which often covers territory different from the limits of political authority in the cities.

In Latin America, the treatment and disposal of waste water and sewage, essential to maintain health and preserve the environment, is the responsibility of drinking water and sanitation service entities. In European countries like France and Spain, an important share of the responsibilities related to water and the environment – especially the financing of investments – are the responsibility of watershed financial agencies and hydrographic confederations, respectively.

The example of Colombia is worthy of note in Latin America. Colombia has a system made up of 34 autonomous water and environmental corporations that cover the entire country. These entities receive financing from different sources, including a share of a national tax. The resources channeled into these corporations represent an important contribution to the investment and pollution control programs for the rivers and savannahs of Bogota.

Most of the water supply sources for Latin American cities are severely compromised. In the first place, the closest water sources – which have traditionally supplied the cities – cannot meet the demand produced by rapid urban growth. Secondly, in many cases these water sources have deteriorated due to the discharge of domestic and industrial waste water, and to fertilizers and toxic chemicals used in agriculture and grazing.

As a result, cities for several decades have searched for new sources of fresh water that can meet the needs of urban areas with large volumes of water of an acceptable quality. And to carry this water to the cities, we need massive, expensive pipelines and pumping systems.

This is the case in most of the big cities in the region, like the Cantareiras system in Sao Paulo, the Cutzamala System in Mexico City, the pipeline system linking Rio de Janeiro with the Paraiba River Basin, the Camatagua system in Caracas and the large system of pipelines and tunnels that cross the continental divide between the Pacific Ocean and the Amazon Basin to connect Lima with the Mantaro River.

And as expected, this tendency has deepened in recent years and requires large incremental investments in many cities. This is made worse by the fact that these large investments do not generate economies of scale and have a negative impact on the financial strength of companies providing drinking water and sanitation services, thus requiring substantial subsidies.

Investments in water systems are particularly complex, since they involve multiple dimensions that generally go well beyond the traditional concept of engineering projects, such as the environmental and social impact of projects on the affected population and the environment.

Moreover, these large projects are carried out over periods of years, often stretching beyond the political cycles in each nation. These factors all must be taken into account to ensure the continuity of investment programs, which sometimes take several decades.

The water problem is aggravated even more by a lack of effective control over user demand. Water loss in networks reaches over 40% and treated water is lost in the piping and plumbing systems in many cities. This is the case in the city of Buenos Aires, where water supplies are estimated at 500 to 600 liters per person per day as a result of losses in the distribution network and at the consumer level.

To respond to these urban water challenges, we require coordinated, cross-sector solutions including proper zoning norms for soil use, public transportation plans and solid waste collection – all within a unified perspective on the water cycle. We especially need a perspective that connects all these sectors in a logical fashion in order to deal with water planning and management in the informal cities of Latin America. This carries a high level of importance for the political authorities in the region. And it implies that the solutions to urban problems must form part of a framework of progressive policies that, in the shortest possible time and at the lowest possible cost, break with the vicious cycle of urban overcrowding, poor public services and violence. This clearly goes beyond the reach of purely sectoral action.

Two recent essays written by CAF on drinking water and sanitation services point in this direction. The conclusion of these studies is that Latin America can and must substantially improve the quality of water and sanitation for disadvantaged sectors of the population beyond the levels stated in the Development Goals for the Millennium (JMP, 2012). They also recognize that a comprehensive approach is needed to supply quality services to the entire population, combined closely with the urbanization process and improvement in environmental quality.

These studies conclude on an optimistic note regarding the size and perspectives of the financial commitment and management improvements that will reverse the low and unpredictable rates of investment in social infra-

structure. They indicate that quality services can be provided to everyone, while at the same time confronting the challenges inherent in increasing environmental damage and the vulnerability of poor urban communities to natural disasters, including the effects of climate change.

To achieve this, we need tools to mitigate the effects of environmental degradation. This environmental phenomenon will, unfortunately, increase inexorably until we reach levels of economic development that allow for social change and we begin to fund investments in protecting and efficiently managing the environment. We also must make major changes in the technological models and the sequence of developing and financing infrastructure, which up to now had been natural. For example, investment in trunk lines for carrying water in the cities will play an even more important role in the future urban planning.

To preserve the quality of urban water sources, steps have been proposed to control the use of land and soil in areas around rivers, lakes, dams and areas that replenish the aquifers. These measures typically use command and control programs, which are enforced by legislation, regulation and penalties imposed for non-compliance. Unfortunately, in most cases, these types of measures have not been effective in controlling the advance of urbanization. Rather, they have caused negative results because they have actually spurred the development of informal communities by blocking change-of-use zoning and causing the loss of economic opportunities that urban zoning changes could bring.

To complement these measures, programs have been started to provide incentives to conservation by using controlled protection of the most vulnerable areas, including national parks, water reserve zones and protected ecosystems, among others. In some cases, these programs receive financial support from special water funds that compensate owners of lands that are to be protected, and generate resources for the operation of these parks and other entities. In other cases, such as Costa Rica, which has “areas of interest” for the Mesoamerican Biological Corridor, the government compensates land owners through a fund that receives money from a tax on gasoline. The annual cost of maintaining one of these areas – including personnel, installations and logistics – does not exceed USD 10 per hectare for areas that are strictly protected and reaches about USD 40 per hectare for Costa Rica’s ecologically protected zones. Based on this concept, incipient water protection zones have been set up in Quito and Bogota.

These zones generally follow the concept of similar programs used in other parts of the world. For example, the environmental services program in the Adirondack Mountains, which supply water to New York City.

The relative progress of water supply agencies in Latin America is shown in Map 2.1.

The color codes show an important advance in water resources in Mexico and Brazil. These two countries, which have very different institutional models, have been able to develop strong and effective water management entities. In Mexico, CONAGUA is the national agency responsible for strategy, planning and operation of the country's most important water infrastructure system. CONAGUA has income of over USD 3 billion per year, of which about USD 1 billion come from payments for water use and compensation for discharges of polluted water. The company has about 20,000 employees working in regional units. In Brazil, the responsibility for water management is in the hands of the states, but all the country's water is under the control of the federal government. In this model, the federal government plays a regulatory role through the National Water Agency, which enjoys considerable independence and has its own budget funded by royalties from the hydroelectric sector. The agency has an annual budget of USD 100 million and some 500 employees.

Drinking Water and Sanitation Services

As we mentioned earlier, access to drinking water and sanitation networks in Latin America has increased significantly in recent decades. On average, water and sanitation services coverage grew from 40% of the urban population in 1950 to more than 90% in 2008 (Latin American and Caribbean Demographic Center, 2009). Without a doubt, this important increase in water and sewage networks reflects a great advance in investment and institutional development for the region, and we have seen more than 300 million inhabitants of cities connected to drinking water networks and over 200 million to sewage systems over the last 60 years.

But despite the high levels of access to drinking water and sewage networks, homes still suffer from poor quality service in terms of water quality and daily service continuity. Moreover, sewage treatment is seriously lacking since less than 30% of those receiving water have any type of treatment. In addition, there are serious deficiencies in urban drainage and in the management of water resources.

Generally speaking, the data provided by companies that supply water and sanitation services indicate a low level of efficiency, since over 40% of treated water is lost due to cracked and broken pipelines, deficient pumping equipment and water wasted at homes due to a lack of water meters or damaged meters, low water rates that do not promote efficient water use and measurement errors. Moreover, these companies face serious problems of non-payment and late payments by subscribers and have large payrolls. (*The World Bank, Water and Sanitation Program, 2011*)

The indicators also show that water utilities lack incentives for being efficient, frequently are highly politicized and have short-term goals linked to

Map 2.1: **Level of institutional control of water resources in Latin America**



Source: Author's research

Map 2.2: The Advance of Institutional Control of Water Resources in Latin America

Drinking water and sanitation



Source: Author's research.

political patronage. Currently, except for some companies with staffing levels comparable to the best in the world, the remainder is made up of a mixed group of over 1,000 companies with low levels of operating efficiency and a high dependence on government funding to cover their investments and operating expenses (*World Water Council, 2003*).

And this picture becomes even more complicated: there are a large number of mid-sized water utilities that service cities of between 20,000 and 50,000 people. For the most part, these companies operate with little help, and norms designed to set up groups of municipal water companies of this size have failed. Map 2.2 tries to show the relative advance of drinking water and sanitation companies in the region, based on the financial results of water and sanitation companies in each country and the effectiveness of the existing legal and regulatory systems. Using these indicators, we find that only Chile's sanitation sector has a high degree of development with respect to management and institutionality, investment and quality of service.

Nevertheless, one case that deserves special attention is that of community services that supply water and basic sanitation to the population. These community groups have shown significant growth, especially in Central America, where they supply drinking water and sanitation services to about 30% of the population. These associations mainly serve rural communities and small towns, which band together to provide technical assistance. This type of organization also achieves economies of scale and has access to government funds and international cooperation. (FANCA – Freshwater Action Network – Central America, 2012)

Organization

Other public service networks do not face the same problems of industrial organization as do the companies supplying drinking water and sanitation services. Perhaps the biggest differences between the drinking water and sanitation sector and other public services that reach the home, such as electricity, are the degree of centralized operations, the structural rigidities that discourage both horizontal and vertical competition, and the social and environmental implications of water consumption and pollution. Several strategies have been devised to confront the chronic inefficiency of the drinking water and sanitation service operators in Latin America. During the 1950s and 1960s, the model used in many Latin countries was to set up water utilities at the national or state level (as in the case of Brazil), in order to achieve economies of scale in their operations, carry out ambitious programs to supply drinking water and, to a lesser degree, develop sanitation systems. In some countries, such as Argentina and Uruguay, this model was adopted much earlier, at the beginning of the 20th century. This model was successful in building much of the water-related infrastructure that currently exists in Latin American cities, and laid the foundation for the institutional and professional organizations that have existed up to now.

This model faced a crisis in the 1980s because it could not keep up with the accelerated expansion of Latin American cities (with some growing by more than 4% per year), because of the inability to raise rates to reflect cost increases and inflation and because of a lack of incentives to use water efficiently in homes. One response to the progressive deterioration in service was setting up programs to develop better water management institutions supported by international groups like the Pan-American Health Organization, with financial support from development banks (particularly the World Bank and the Inter-American Development Bank). This did not produce the expected results and, as a result, models were developed to incorporate private sector economic incentives, following the systems used in several European countries, principally France, Spain and England.

Putting the private sector into Latin America's drinking water and sanitation services sector produced both positive and negative results. In Chile, and to a lesser extent Brazil, this private sector model for supplying drinking water and sanitation services was very successful. But over the last decade, its share of the market has dropped, and now reaches about 7% of the urban population. Agencies were also set up in many countries to regulate the economics and the quality of services. Although there are great differences in the mandates of regulatory agencies, countries like Chile, Colombia and Peru showed significant results with respect to the quality and transparency of sectoral data, as well as professionalism in regulatory activities. At the same time, there were major failures in several water concessions in the region and in other parts of the world, as was the case in Argentina (especially Buenos Aires) and Bolivia.

The drinking water and sanitation service plan adopted in each area was related to the political institutions of each nation. Usually, though, the dependent services or concessions were shaped by municipal governments, who were the legal owners of these entities. In the case of countries with a strong federalist tradition, like Mexico and Brazil, the political and regulatory relationship could be different, with a variety of political and administrative jurisdictions. While in other countries, large national water companies usually dominated the scene. In almost all cases, certain types of public companies that provide these services are governed by private law. This category includes the most successful companies (although they are in the minority).

Services in small and mid-sized cities are, in many cases, run by the city government through its administrative offices. This is not the case in Chile, Colombia and Peru, where municipal service suppliers must adopt the role of a social entity governed by private law. This arrangement, oriented toward removing politics from the companies that provide public services has, in several cases, posted favorable results, despite a slow implementation process. We should point to the importance of local services in the political agenda

of more than 18,000 municipal governments that have been elected in Latin America in recent years. In effect, these governments form a new pattern of public action and responsibility, assigning funds and providing an account of their actions to the public.

The debate over promoting more or less decentralization apparently is not very relevant to this issue. In many cases, the public is reluctant to accept services from local companies with a bad service record or large liabilities, especially on the labor front. The positive factors that come with decentralization, as well as efforts to establish groups of municipal governments to run water companies have not, up to now, been able to mesh with the political, economic and social reality of Latin America. And of course, the decentralization of public services requires major incentives that must be paid by central governments. Except in Brazil, where the predominant state-owned companies have a strong incentive to set up concessions with local governments, this is not a high priority issue on country agendas.

Except for very large municipal governments that have political influence, most local governments are economically and politically weak institutions that are highly dependent on the administrative web of the central government. As a result, their capacity to operate water and sanitation services for the community is limited, whatever the level of decentralization. The reality of this situation is that: (i) quality and coverage of service at these companies is below average for the country, (ii) the services are co-opted by political interests, (iii) they have a heavy dependence on financial support (from the state, provincial or national government), which in turn is assigned according to political interests, (iv) there are very large differences in service quality between neighboring cities and (v) there is difficulty in complying with central government regulation.

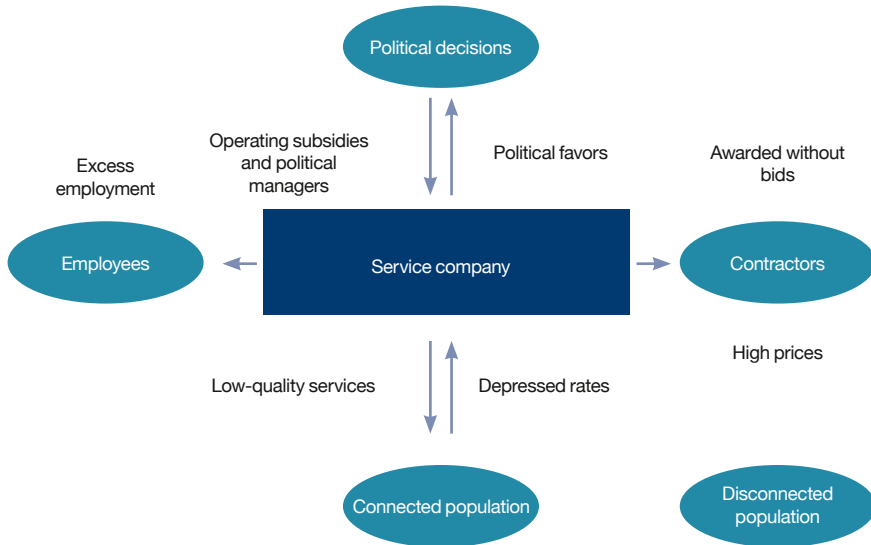
This combination of factors explains the financing problems that less-than-sovereign entities generally have to face, even when they deal with national financial development agencies, as is the case with Brazil, Mexico and Colombia. In most cases, these organizations have to turn to the central government to obtain loans, guarantees and other financial facilities, which means that negotiations will be carried out, more than anything else, from a political point of view. This situation is aggravated by the fact that central government budgets are approved each year. In contrast, infrastructure investments – especially in water and related services – are long-term commitments and require several years to develop, design and carry out a major project.

In summary, there are two alternative service models: one that embraces the traditional, highly politicized systems and the other that uses business practices and is subject to the rules of the game and regulatory bodies. The latter represents a more stable and predictable scenario, better aligned with the goals of efficiency and equality (Figures 2.2 and 2.3).

Results

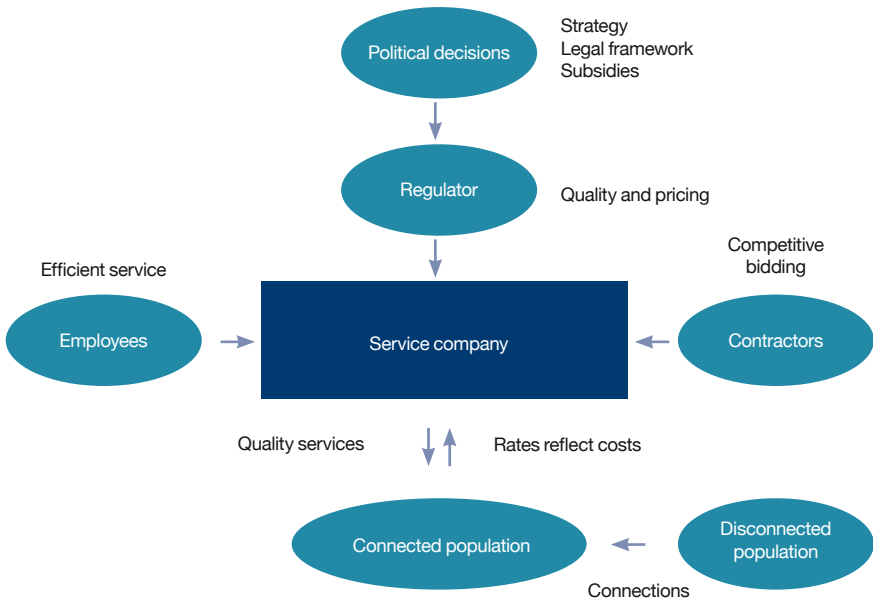
The efficiency and quality of service can be measured by the results these companies produce and the costs incurred in achieving those results. A realistic assessment indicates there are contradictory conclusions: a few enterprises receive excellent ratings, comparable with the world's best service suppliers: in Brazil, SABESP, SANEPAR, and Aguas de Limeira; in Colombia, Empresas Públicas de Medellín; in Chile, Aguas Andinas, ESVAL and ESBIO and in Bolivia, SAGUAPAC. At the same time, other companies are moving in this direction: in Colombia, TRIPLE A de Barranquilla; ACUACAR de Cartagena and Empresa de Acueductos de Bogotá; in Uruguay, OSE; in Ecuador INTERAGUA de Guayaquil, and in Mexico, Aguas de Saltillo. Outside of a small group of companies that compare favorably with the best service providers in the world, there are a vast number of organizations that offer low quality, irregular and inefficient services. Unfortunately, this segment dominates in the region.

Figure 2.2: **Traditional Service Model for Drinking Water and Sanitary Service Enterprises**



Source: Adapted from Foster; CAF (2012).

Figure 2.3: **Modern Model for Drinking Water and Sanitary Service Enterprises**



Source: Adapted from Foster; CAF (2012).

With few exceptions, the structural reforms attempted up to now have been, unfortunately, more a matter of declarations than effective practice. This assessment is derived from some operating data, which show that water quality is deficient and sometimes unsafe; about 40% to 50% of water is not accounted for; non-payment of bills reaching above 15% of all subscribers; irregular water supplies in almost 30% of all systems; home metering that does not reach 65% of subscribers; overemployment hidden by all types of outsourcing (The World Bank, 2011) and an average of 3.8 employees per thousand connections (ALDERASA, 2010).

An efficient scenario, in keeping with comparable figures from emerging countries in the European Union, would show the level of water not accounted for at 20%, zero non-payment of bills, and a labor productivity index of about two employees per 1,000 connections.

In practice, drinking water and sanitation services in Latin America have been saddled with an arbitrary and unjust reality. The poorest sectors of the population are forced to participate in an absurd market competition.

Because of inefficient and insufficient water supply, they have been assigned a role as second class citizens. To obtain drinking water, the poor have turned to supplying themselves and/or using dangerous or illegal supplies, including tank trucks that deliver water of questionable quality to neighborhoods, public fountains and pools and illegal connections to the water system, among other things. These poor neighborhoods are competing for water with the enormous and fast growing demand from industry and increased consumption among other residential and commercial sectors, which are much better off and, in some cases, receive inappropriate subsidies. This situation is aggravated by a limited supply of water and a high percentage of leakage and losses. These practices – obtaining water either illegally or from sources outside the public network – are generally accentuated in parts of Brazil, Mexico, Peru, Paraguay, Ecuador and Central America. Of the 95.4% of reported drinking water coverage in Latin America and the Caribbean, no less than 25% is obtained by precarious or clandestine methods, since the informal population has no other way of supplying itself. Statistics on large informal communities clearly allow us to infer this information (UN Habitat, 2008).

The situation with respect to sewage systems is even more serious due to the health risks linked to the lack of infrastructure. In sectors with growing populations surrounding urban areas, people frequently use septic tanks, different types of latrines and/or channels that connect with rain water drainage ditches. This is done without any control over the construction quality of these alternatives or over their use. Countries want to implement sewage systems to comply with Millennium Goals. But in many countries, like Brazil, Ecuador, Argentina, Mexico and Venezuela, when direct service to homes becomes available, many people refuse to connect because the cost does not seem to produce any immediate benefits. This, then, becomes a significant entry barrier, and people ignore the importance of improved sanitary conditions and possible increases in property value. In fact, of the reported 86.4% coverage of sewers in urban areas, 35% are unsafe and unsanitary, and also damage the environment. These points come from information reported in compliance with the sanitation aspects of the Millennium Goals (World Health Organization, 2010).

In summary, providing service to households is not necessarily the best option for the poorest families, since launching these systems in marginal neighborhoods requires service operators to force their acceptance or provide subsidies. Both factors have had a negative social impact and were difficult to carry out, as in the examples of Guayaquil, Manaus and Paraguay.

As for sewage treatment systems with some type of filtration, actual coverage is estimated at 26.3% of the total regional population (UN Statistics, 2010). But in the last decade, this coverage has grown modestly, and Chile has focused great attention on a sustained investment plan designed to reach the highest level of coverage technically possible by the year 2021.

Other countries are making isolated efforts, some of which have great importance for the environment, such as the cleaning of the Tieté River in Sao Paulo; the Matanza-Riachuelo and Reconquista River Basins in Buenos Aires; the Bogotá River; the Valley of Mexico through the Atotonilco treatment plant; Panama City and Panama Bay, and in Lima, the underwater sewage lines and construction of the Taboada treatment plant. These projects generally are a response to acute problems based on social demand, and only tangentially reflect a comprehensive vision of urban cycle water management.

Costs and Rates

According to information reported to the International Benchmarking Network by the largest water and sanitation companies in the region from 15 nations, the average sales price for a cubic meter of drinking water and sewage was USD 0.62 (The World Bank, 2011), with a low of USD 0.04 (El Salvador) and a high of USD 1.84 (Uruguay).

Rate setting depends on economic regulation models in Chile, Colombia and Peru, on cost recovery procedures in Uruguay, on system continuity based on costs and updated for inflation in Brazil or systems that combine these components. In Mexico, for example, rates must be approved each year by state legislatures.

In other cases, rate decisions depend on political opportunity, with utilities seeking the approval from high levels of the federal government. The criteria governing both normal and extraordinary rate increases have similar characteristics. The most common practice is an annual inflation adjustment for the preceding year. In other cases, updating rates is worked out in political negotiations, as is the practice in Argentina, Bolivia and Venezuela. Panama's situation is unusual: rates for drinking water have been frozen since 1982 for political reasons.

These reports permit us to conclude that, overall, the nominal amounts billed for water barely cover operating costs, thus leading to chronic service shortfalls. Inefficient practices, as we shall see later, represent at least 25% of total billings in the 15 nations under consideration. ADERASA (The Association of Water and Sewage Regulating Bodies in Latin America) calculated that the income margin after operating expenses was 2.5% in the 18 companies covered in the region. Brazil's Sanitation Information System (SNIS) reported in 2010 that its margin was 8.3%. In both cases, it is clear that these earnings are not high enough to guarantee sound operations in these systems.

As for demand-related subsidies, there are a wide variety of cross-subsidies covering drinking water and sanitation services in the region, outside the models we have referred to (Chile and Colombia), which have been working for more than a decade. In other countries, there are direct subsidies from the government, as in the case of Ecuador, where subsidies originated in the

telephone sector, and in El Salvador, where they are derived from electric power distribution. Once more, we see a wide variety of applications: (i) in the process of identifying recipients of subsidies, instead of focusing on specific groups, subsidies are applied indiscriminately (Argentina and Bolivia). People who do not need subsidies receive them, which creates patronage systems or fraud. (Except for a few cases, assimilated subsidies are not counted with social subsidies granted in the same area.); (ii) as for the size of the subsidy, the unit assigned covers the first 10 cubic meters of consumption per household, without any relation to the resident population. Other types of quantitative criteria could be used instead.

Investment

Estimates put the value of average annual investments in the most recent three-year period, mainly for expanding regional water and sewage systems, at around USD 4.429 billion (CAF, 2011), an initiative that has expanded coverage. This level of investment represented 0.11% of regional GDP in 2008 for the 15 countries in our sample, or a total of USD 4.4 billion. Although this is a significant outlay, the investment in general terms is not enough to meet the demands of economic growth in the region, cover the shortfall in service infrastructure or repair and renovate existing infrastructure.

It should be mentioned that the investment estimates for each country have to do with increased coverage, calculated in terms of costs for uniform system connections, since the average prices paid are unknown. Investment decisions are not related to a comprehensive policy for dealing with urban water problems over the medium and long term, except in countries with effective sectoral planning and regulation. Nor is there any control over the technical advisability of project design and budgets in terms of demand.

The Shortfall in Urban Water Infrastructure

Estimates on achieving almost universal coverage of drinking water and sanitation services by 2030 call for annual investments of USD 12.5 billion, equivalent to 0.31% of the region's GDP in 2010 (CAF, 2011). This would mean total capital outlays of USD 250 billion. These figures were calculated to achieve specific coverage goals for sewage treatment systems, substantial increases in rainwater drainage networks, as well as increases in water source capacity and optimization of these sources. They also cover the development of formal service in the marginal zones in urban areas and the repair and renovation of existing assets (Table 2.1).

These figures seem impossible to achieve if the projections are compared to the USD 4 billion figure, which is a current annual average and almost exclusively covers water and sewer systems. The USD 4 billion does not include other important sectoral investments, such as new water sources, cleaning up watersheds and repair and renovation. The biggest investment

Table 2.1: **Goals and costs related to providing universal water and sanitation services in marginal urban areas and the repair and renovation of existing assets by 2030.**

Service	USD billions (2010-2030)	USD billions average per year	Goal for 2030
Drinking water ¹	45.4	2.27	100% coverage
Sewage systems ¹	79.4	3.97	94% coverage
Water treatment ¹	33.2	1.66	64% treated
Drainage ¹	33.6	1.68	85% urban areas
Water sources ²	27.1	1.35	100% of incremental demand
Formalizing and Connecting water	30.5	1.52	50% reduction in service gap, 20 million homes
Total	249.2	12.45	

1) Expansion, repair and renovation
2) New water sources

Source: CAF (2011).

gap is in normalizing services for marginal populations, drainage systems, expanding the sources of water capture and treatment, and to a lesser degree, the other categories.

Nonetheless, these estimates are realistic if the following conditions are present: (i) governments assign budget priority to these projects, taking into consideration the social and economic impact of poor national sanitation; (ii) establishment of an institutional system guided by a comprehensive vision of urban water problems that leads to a blueprint for investment; (iii) a system of rates and subsidies that ensures profit margins to cover the infrastructure gap; and (iv) appropriate sized-projects carried out efficiently.

The recommended financing plan is presented in Table 2.2. In general terms, funding should not be assigned to the drinking water and sewage sector beyond current levels. Referring to the annual payments made by governments, one reaches the conclusion that the sector does not require additional nominal sums. As for transfers of public money, these should go to companies that are efficient, practice austerity and are transparent in their financial and operational activities.

Table 2.2: **Investment Financing as a Share of GDP**

Category	% of 2010 GDP	Notes
Operating costs	0.5	Based on data from Chile, Colombia, Brazil and Mexico
Sewer systems and sewage treatment	0.2	Includes expansion, repairs and renovation
Other investments in water	0.07	Includes urban drainage systems and expanding sources of drinking water
Connecting households to the system	0.04	Cut the service deficit by 50%

Source: CAF (2011).

As for rates, a substantial share of investment needs should be financed by real profits generated through the sale of services. In general, when a system generates a difference of 30% between costs and income, it should be able to cover investments in any public service. Except for Chile and Colombia, and in some exceptional cases, this percentage has not been reached in the region.

Since rate increases will be opposed when they are not accompanied by significant improvements in service quality and coverage, the search for profits should be oriented toward: (i) making current operations more efficient, (ii) revising subsidy policies and (iii) correcting distortions in rates. Real progress can be made in all of these areas.

By making gradual changes to improve efficiency in collections, productivity and unmetered water, savings of USD 5.8 billion could eventually be achieved in the sector, as shown in Table 2.3. These same indicators of meta-efficiency are widely used in many countries, which allow for comparisons based on standardized definitions. Using intermediate goals, and assuming collections of less than 100%, economic losses of between 20-30% and lower labor productivity, can be useful tools for realistically quantifying intermediate objectives, including financial resources and the time required for achieving these goals.

As for subsidies, we should turn to the normal standards that define the payment capacity of low-income households, (based on the ratio of national per capita GDP to annual revenue generated by water and sanitation services). Mexico, Uruguay, Colombia and Peru have set their subsidies at the point of equilibrium, while Brazil and Chile come close.

Argentina, Bolivia, El Salvador, Panama and Venezuela, in contrast, present rate structures with margins of surplus payment capacity. These are general-

zed and indiscriminate subsidies. With regard to distortions, it is worth noting that Panama, El Salvador, Honduras, Argentina and Venezuela have kept their rates frozen at nominal levels for many years, so that any increase even to account for inflation would be seen as a real increase.

Table 2.3: **Annual Cost of Inefficiency**

Hidden cost	USD billions	Benchmark
Excess personnel	1.82	1 employee per 500 connections
Unmetered water	1.91	20%
Non-payment, late payments	2.05	100% bill collection
Total cost of inefficiency	5.78	

Source: CAF (2011).

Higher revenues for utilities should also come from subsidies that focus on demand, and are based on a more equitable basis relative to income. Except for the systems used in Chile and Colombia, which require cooperation with municipal governments that would be almost impossible to achieve in other countries, the cross-subsidies that exist in almost all other countries need to be revised. This is also true for generalized subsidies, which are nothing more than political levies.

The pattern of cross-subsidies – of different types and sizes – may be moving away from orthodox economics, but they are part of the culture and the financial reality of the region.

Although it is true that a majority of Latin America’s population remains in the lowest quintiles, it is clear that the distribution of the strong increase in regional GDP has favored the privileged sectors, widening the breach between poor and rich. The rate system, and especially the cross-subsidies that affect drinking water and sanitation, have not yet adjusted to this reality. As a result, there is an intrinsic need to achieve social justice, establishing focused subsidies and eliminating the existing inclusive and exclusive distortions, while at the same time restricting benefits for high-income users who do not need them.

A gradual and broad revision of the current subsidy structures would generate revenue surpassing 20% of current revenues, or about USD 4.2 billion. Greater efficiency, combined with changes to subsidies, would make it pos-

sible to obtain the resources needed to cover the financing that should be generated by sales of these public services.

Conclusion

This chapter offers an overview of the challenges facing the drinking water and sanitation services sector in Latin America, as well as the unquestionable advances that have been made to respond to the addition of 400 million people to urban centers over the last six decades. The size of this urban growth is equivalent to the population of European nations that built their water infrastructure over the last 150 years or more. Nevertheless, we still face a situation in which 25% of the urban population in Latin America is suffering from major shortfalls in public services and we see progressive environmental damage in the cities. Investment in infrastructure must be increased to repair and upgrade existing networks and installations, to expand current sewage treatment capacity, to install urban rainwater drainage systems and to find and develop new sources of drinking water.

But the investments described in this chapter will be futile if countries do not improve the performance of existing water and sanitation companies, and in general develop a sound institutional approach to water. It is essential that this institutionality be built on the principles of efficiency and equality in order to comply with the mandate that access to water is a human right. CAF estimates that efforts to provide universal drinking water and sanitation services to Latin America is in line with development in the region, representing an outlay of 0.3% of GDP. We hope that this investment, coupled with revenue generated by efficient management of water services, will allow us to provide universal drinking water to the region over the next 10 to 15 years.

A Regional Assessment of Universal Access to Services: Focusing human rights on those who are left out

Abel Mejía Betancourt

Inequality and the human right to water supply and sanitation

Formal recognition of The Human Right to Water and Sanitation, established by the United Nations on July 28, 2010, is not simply a new piece in the international legal structure. This resolution obliges nations to adjust their laws and regulatory framework to facilitate the implantation of strategies in compliance with this mandate.

Although this right already exists in the laws of many nations as a general concept, it now has been explicitly recognized and its inclusion in national legislation will oblige countries to accept the regulatory standards contained in the United Nation's General Observation No. 15. National concern about water and sanitation translated initially into legislative adoption of the new rights. In the case of Latin America, this resolution confirms the desire to provide quality water and sanitation services to households on a universal scale, and presents an opportunity to impact existing inequality and simultaneously advance social inclusion.

Nonetheless, it will not be possible to achieve this goal using only traditional public policy tools. We must recognize that the people who are in this problematic situation, either because they lack basic public services or receive them on an irregular basis, have not arrived at this situation because they are

lacking only one thing, but because of a combination of different basic needs. As a result, providing universal access to water and sanitation services requires a different approach carried out under a broader, more comprehensive concept: For example, it is not possible to have quality water service in a home if the home lacks adequate interior plumbing and can't benefit from connection to the public water system.

So universal access to safe water and sanitation services must be converted into concrete actions that work for people who are at different levels on the scale of basic opportunities, that is, actions that recognize the different paths of human development (Ocampo, 2004). Reinforcing this point of view is the recognition that the trickle-down effect we expected from high and sustained levels of economic growth does not create the distributive social effects required to satisfy the goals and expectations of the poorest population groups in a reasonable amount of time.

Human rights issues have been analyzed from different academic points of view. These analyses mainly have been done from an ethical viewpoint or from the point of view of the legal obligations they engender. But these approaches tend to ignore the institutional and economic processes that condition individual freedoms and the true application of human rights. Nor are these views captured within the framework of traditional economics, which have been incapable of incorporating the concepts of freedom and rights in theoretical and empirical analyses (Sen, 1999).

Over the last 20 years, these topics have been discussed in multiple dimensions, exploring the concepts of poverty and development, going beyond the capacity to explain indicators of income, consumption and personal well-being, that are the basis of traditional economic analysis. For example, the Human Development Reports done by the United Nations Development Program (UNDP, 2000) define human development in terms of expanding the human being's most valuable abilities. The Human Development Index tries to capture the importance of three critical human abilities: knowledge, longevity and a decent level of life.

At the same time, the Human Development Index is designed to identify basic hardships, so that the quality of life is classified in terms of access to water, medical services and the weight of newborns. The World Bank also is moving in the same direction by recognizing that poverty is not simply a lack of income and human development, but that it involves vulnerability, lack of a voice, empowerment and representation (The World Bank, 2000).

This point of view gains relevance as we recognize that, up to now, society has not offered an important and vulnerable share of society access to opportunities, which translates into losses in terms of health, productivity and general well-being. In Latin American cities, 25% of the population lives in urban settings classified as informal, according to criteria developed by UN Habitat related to construction materials used in housing, overcrowding, and access to drinking water and sanitation services (UN Habitat, 2009).

Under this view, social equality – seen as the expression of people’s basic freedoms – is converted into a goal in its own right, the true expression of the higher purposes that inspire society in reaffirming the basic principle of respect for human dignity and social cohesion. And within this same vision, guaranteeing the human right to water and sanitation services, as well as other economic, social and cultural rights, becomes the central goal of countries seeking economic and social development (Sen. 1999).

United Nations Observation No. 15: The human right to water

Drinking Water

According to the definition appearing in General Observation No. 15, the human right to water is the right of everyone to have sufficient, clean, accessible and affordable water for personal and home use. While recognizing water’s fundamental role in producing food, generating means of survival and the enjoyment of certain cultural experiences, the top priority in allocating water should be for personal and home use. It is also important to guarantee sustainable access to water for agricultural activities, in exercise of the right to an adequate supply of food, as well as to ensure water for small farmers, especially women. The observation also stipulates that a people cannot be deprived of their own means of survival, emphasizing that governments must guarantee indigenous peoples adequate access to water.

The conditions necessary to satisfy this right may vary, but the following should be considered fundamental elements:

- **Availability.** The supply of water reaching each person should be sufficient for personal and home use, such as drinking, personal cleanliness and preparing food, and should be continuously available.
- **Quality.** Water should be safe for human use, free of micro-organisms, chemical substances or risks of radiation that are a threat to health. Moreover, water for domestic use should have an acceptable color, odor and taste.
- **Accessibility.** Water and the services related to its supply should be available to everyone without discrimination of any kind. This requirement has several aspects:
 - **Physical access.** An adequate water supply should be located safely within the reach of all sectors of the population. A sufficient, safe and acceptable quantity of water should be available at, or immediately near, each home, educational institution and place of work.
 - **Economic access.** Water supply should be affordable for everyone. The direct and indirect costs of water should not prevent the exercise of other rights, such as food, housing, health or education.

- **Non-Discrimination.** Water supply services should cover the poorest and most unprotected sectors of the population, without regard to factors such as race, color, sex, age, language, religion, political or other opinion, physical or mental capacity, health, sexual orientation, civil state or any other type of political, social or other condition. None of these aforementioned conditions should deny or limit anyone's right to water.
- **Right to information.** Accessibility includes the right to seek, obtain and disseminate information related to water. These elements will be developed as the population genuinely engages in the process and as means are developed to fight corruption.

Sanitation

Within the framework of human rights, sanitation is defined as systems to retrieve, move, treat and eliminate human excrement and to promote good hygiene. The following have been identified as fundamental elements of the right to sanitation:

- **Availability.** Each home, educational institution and place of work and public access should have a sufficient number of restrooms either inside or close by to avoid excessive wait times.
- **Quality.** This is a key requirement in deciding on compliance with indicator 7C of the millennium goals. It seeks to avoid contact between people and excrement and offer them access to unpolluted water for personal hygiene.
- **Physical accessibility.** Everyone, especially children, the handicapped and the elderly, should have access to restrooms and be able to use them 24 hours a day.
- **Affordability.** Sanitation services, including the building, emptying and maintenance of sanitary installations, as well as the treatment and elimination of fecal material, should be available to everyone at an affordable price, without interfering with their ability to exercise other rights.
- **Acceptability.** Sanitation services should be adapted to the cultural norms of users and their connections with people.

Sound Practices at the International Level

The United Nations Council on Human Rights named Catarina de Albuquerque⁶ as the Special Rapporteur for the right to safe drinking water and sanitation. As part of her mandate, the Special Rapporteur had the task of gathering sound international practices related to implementing the right

6. Albuquerque, an attorney from Portugal, presided over negotiations on the Optional Protocol of the International Covenant on Economic, Social and Cultural Rights since 2004. The Optional Protocol was approved by the United Nations General Assembly on December 10, 2008.

to drinking water and sanitation services. In September of 2011, the Special Rapporteur delivered a report to the Council covering discussions and concrete information on sound practices related to the legal and institutional frameworks, financing, budgets, implementation and reporting of results. (Albuquerque, 2011).

The report reflects careful and systematic work covering more than three years, including interviews, visits and reviews of over 220 cases. The product is a set of sound and well documented practices for advancing the human right to drinking water and sanitation services. The report's main messages are particularly relevant for this book and are summarized as follows.

- **Human rights make a difference.** Rights alone do not provide services. But they provide a solid framework so that governments, donors, civil society and service providers can plan and build a future that can supply everyone access to water and sanitation services in necessary quantities and at an affordable price to help them enjoy a healthy and improved life.
- **Holistic approaches are the most effective.** Water and sanitation are closely connected and must be considered in holistic terms, even when sanitation services do not require water. Access to water, especially in densely populated areas, becomes a threat to health if there is no appropriate means of disposing of sewage. Sanitation services should include not only the collection of fecal material, but also procedures for hygienic storage, transportation, treatment, disposal and recycling of this material.
- **Collecting data is essential.** It is necessary to know who does not have access to safe and affordable sanitation services. Only when this information is gathered, can we work to improve access to these services for those who still do not have them. Data must be broken down and analyzed carefully so that officials can make the most appropriate use of financial resources and avoid building treatment plants that are too large for the areas they serve.
- **Focus the application of human rights on those who are left out.** One of the basic goals of human rights legislation is to focus on marginal communities, on those who have been excluded from the benefits of society or on those who are exposed to any type of risk. These individuals or groups generally lack the means for demanding their rights and require special attention to ensure that they are not excluded simply because they belong to a specific group. This includes those who live in informal settlements (slums), and women.
- **International and local efforts are closely related.** Providing access to safe and affordable water and sanitation services is an inherently

local problem, since these services are required near the homes and neighborhoods where people live. But this local reality is linked to positive actions taken by international agencies to help provide the rights to water and sanitation services in the work carried out by local authorities.

Results in Latin America

The effective application of the Human Right to Water in Latin America, beyond the formal declarations, is controversial. A thorough evaluation of Latin countries and their compliance with the principles of the Human Right to Water was carried out with the support of the Inter-American Development Bank (IDB, 2011). This report was presented and discussed at the Sixth World Forum on Water held in Marseille, France, in March of 2012. The methodology in the report was qualitative and thus contains an element of subjectivity. Nevertheless, it provides a regional view supported by three analytic categories. These are sectoral governance, which refers to the legal framework for achieving the Human Right to Water; the sustainability of financing for this sector and consistency in the combination of public policies, plans and strategies used by countries to advance the implementation of water and sanitation services.

Taking into account the analytical elements in the report and data from other recent regional documents also discussed at the Sixth World Forum on Water (CAF, 2012), a regional scorecard was developed in an effort to show the situation of each country, in a general and intuitive manner (Figure 3.1). Using this classification, we see that only Chile has achieved a reasonable level of compliance. The most highly populated countries, Brazil and Mexico, which make up more than 50% of the region's total population, have made significant advances but still must do more work in terms of concrete policies and plans. The countries of Central America and the Caribbean are the farthest behind. Other countries that actively advocate the Human Right to Water on an international scale still show considerable levels of non-compliance.

Moving Toward an Affirmative Agenda on the Human Right to Water and Sanitation

The sound practices contained in the previously mentioned document (Albuquerque, 2011), offer a variety of options that explain the application of the human right according to specific topics related to drinking water and sanitation services in several countries. Viewing these practices, in light of

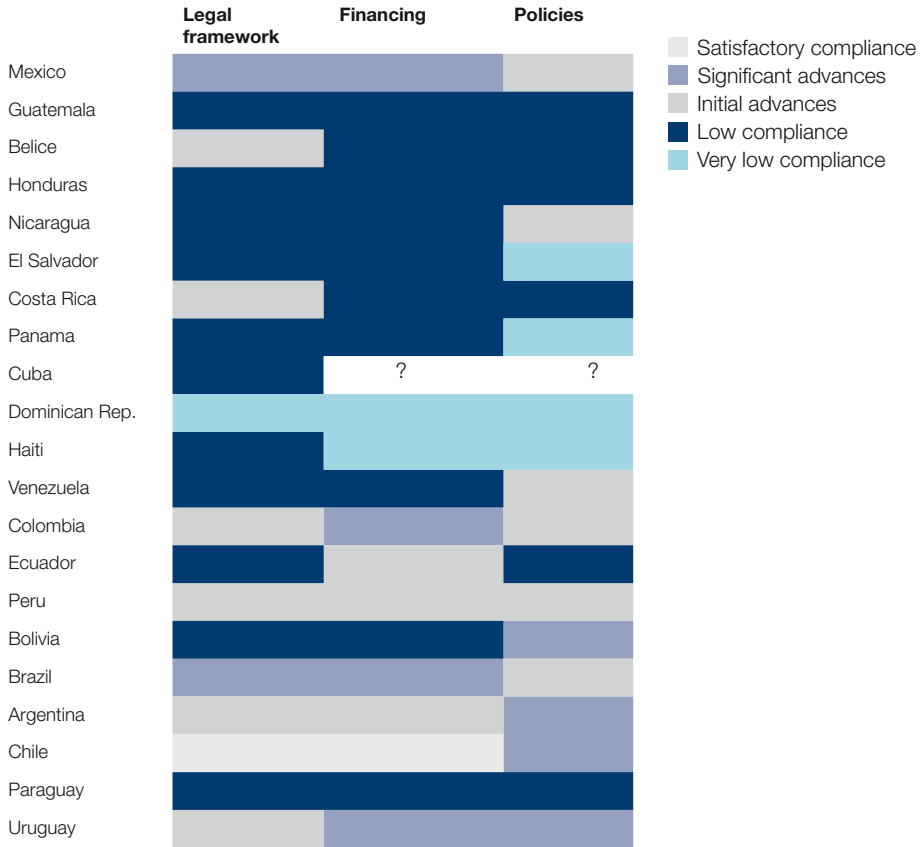
the current situation in Latin America, and converting them into a possible agenda for the region, should include the decisions that help to explain the legal mandates in terms of political and institutional change. At the same time, trans-sector issues should be considered, especially those related to urban development, the environment and climate change, which are essential to achieve these rights. Finally, the report refers to the sectoral financing requirements for investments in urban waterworks, as well as operations of lending institutions, as part of the effort to comply with the water and sanitation mandate.

Policies and Institutions

Some of the detailed recommendations on policies and institutionality that support building an agenda to implement the human right to water and sanitation could include the following:

- **Sectoral information and data.** What is needed is a policy of transparency that ensures public access to information and allows all citizens to participate in decisions on public policy. This includes the preparation of support material, data, analyses and scenarios, all of which are elements that allow us to visualize viable, possible futures and inform decision-making. This should be a central pillar in any future action, supported by public access to all information on water, including data, studies and technical reports. All this will allow us to understand the actual state of water services in the region and obtain the active participation of the entire society in finding models and defining priorities as we take action.
- **Social participation.** The participation of organized civil society in providing drinking water and sanitation services to the community helps to reduce asymmetries in information regarding these services, limits discretionary action in technical and financial decisions, prevents corruption, helps to obtain public acceptance of decisions, provides a channel for citizens' concerns and helps in the process of problem resolution. In summary, civil society's right to public participation is granted an active role in the entire process. Social participation should be established through institutional norms, procedures and actions that ensure public participation in any problem areas that affect their essential rights, starting with the right to life.
- **Providing the public information on results.** This refers to a policy under which public and private entities legally involved in issues related to water should provide the public with accurate information and reports. The process requires objectives, goals, measurements and monitoring of results. Public hearings, consulting sessions and social audits involving all interested parties are central to this policy. Engaging in these activities produces a virtuous cycle of learning and including lessons learned.

Figure 3.1: **The Human Right to Safe Drinking Water and Sanitation/Scorecard**



Source: Author's research, based on IDB (2011).

- Sectoral strategies and planning processes.** Frequently, specific laws governing sectoral issues, including drinking water and sanitation services, are not widely discussed or approved based on an analysis of their institutional implications, cost of implementation, coordinating requirements or financial resources needed for effective implementation. To change this situation, it is necessary to establish and formalize strategic evaluation processes that cover the technical, economic, social and environmental aspects of these issues, as well as the political and economic environment affecting the practicality of implementing any

changes. Without these strategic and planning tools, efforts to move ahead with plans in a specific sector, such as the human right to water, will be improvised and will be developed according to short-term political needs without paying attention to relations with other sectors or the sustainability of projects over the long term.

- **Developing suitable projects.** When water infrastructure projects are being developed, great importance is generally assigned to engineering solutions, while less attention is paid to an economic evaluation of issues such as social and environmental impacts, which often are considered “mitigating measures” and are taken after the major decisions are made based overwhelmingly on technical criteria. This practice, combined with distortions generated by financing programs, can lead to less than optimal projects in terms of costs, size and technology. At the same time, the pressures of urban growth have favored projects that extend existing water networks and minimize investment in new trunk lines or in repair and renovation of existing facilities. This complex problem can be resolved by developing master plans that should be formulated outside the traditional framework, which typically is focused on the engineering aspects of a project. A new generation of project planning and evaluation tools is needed to deal with the economic, social and environmental aspects of hydro projects, as well as the overlap and interrelations with other sectors. Without these tools, planning and project development to implement the human right to water and sanitation services will be difficult to achieve in an efficient and sustainable fashion

Urban Development

Twenty-five percent of the urban population in Latin America either lack water and sanitation services, or receive them on an irregular and unreliable basis, which results in unhealthy water, unreliable water delivery and pressure in distribution systems, and a low level of sewage treatment. Moreover, the majority of cities have serious deficiencies in rainwater drainage systems, as well as in programs to protect their water sources. Maintaining this system creates two types of citizens: some who enjoy services comparable to those offered in the developed world and others who must resign themselves to an inferior level of service.

This situation is closely related to difficult and deficient urban housing conditions and often to illegal landholding. Thus, the challenges of properly urbanizing informal communities takes on unusual importance for developing nations in order to effectively implement the human right to water and sanitation. The challenge of the cities, then, is to develop an adequate water infrastructure within the institutional conditions of social and financial policy that break the vicious cycle of overcrowding, poor quality services and violence as soon as possible and at the lowest cost.

Environmental Degradation

At the same time, we will need policy tools that reduce the impact of environmental degradation, especially among the neediest and most vulnerable communities. To do this, we can consider government-financed funds and social motivation tools that provide a channel for public petitions on the rights to health and a healthy urban environment. These policies should promote a reversal in the growing rates of environmental decay and assign priority to actions that reduce their impact on human health at the lowest cost, while offering the greatest social benefits. Latin America's experience in this area is important, showing that efforts to modify personal hygiene and cooking habits, supply safe water on an uninterrupted basis and effective sewer systems are those that produce the best cost/benefit indicators for different projects.

Climate Change

The greater frequency of drought and flooding in the urban watersheds links climate change to the human right to water. Although it is difficult to predict the size and reach of changes in rainfall affecting the hydrological systems that feed the cities, there is a reasonable consensus in the scientific community regarding the hydrological ecosystems that will suffer the greatest stress as a result of global warming. First, we have the shrinking of glacial systems in the tropical Andes, from Bolivia to Venezuela, and an increase in coastal flooding and saltwater intrusion as the average sea levels rise, which will have a serious impact on islands in the Caribbean and the Gulf of Mexico. Secondly, there will be more periods of drought in the already dry areas in northwestern Mexico, northern Chile and northeastern Brazil. One other case that warrants special attention is the possible reduction in precipitation in the mid-zone of the Amazonian and Orinoco basins, which could impact the regional climate, especially in the Brazilian Cerrado and in the Venezuelan and Colombian plains. At the same time, some models indicate an increase in average annual precipitation in part of Argentina's pampas and in El Chaco.

These effects are receiving more careful study in the affected countries to determine what steps can be taken to adapt to the new climatic scenarios, since the region's historical hydrological records do not provide enough data to predict future scenarios. For example, on the water supply side, countries need to decide on the construction and capacity expansion of collection reservoirs to compensate for the lack of water coming from the Andean glaciers. Also under consideration are raising coastal infrastructure and strengthening defenses against seawater invasion. At the same time, measures are being studied for managing water demand, such as more efficient use of water for irrigation as well as industrial and domestic use. Even more important is the need to restore and strengthen coastal and inland wetlands, conserve woodlands that produce water and protect the areas where aquifers are replenished.

Financing

Two reports done recently by CAF on drinking water and sanitation focused on two interconnected topics: the institutionalization of services, meaning the organization of providers, rules of the game and procedures, and the gap in the region in terms of infrastructure and financing. The relationship between these two – infrastructure and institutionality – operates as a reciprocal, cause and effect link. These reports propose the goal of universal availability of drinking water and sanitation services within a comprehensive focus on the problem of supplying water to the cities, as well as installing standard water and sewage connections to the informal communities occupying the land.

To achieve the estimates (summarized in Chapter 2), the following definitions will be used:

- **Coverage of safe drinking water:** The supplied population is made up of all the people who live or reside in housing that receives drinking water from a company or agency authorized to operate within the distribution network.
- **Coverage of basic sanitation or sewer service:** The population covered by sanitation includes all those who live or reside in housing where sewage is collected by a company or agency authorized to operate within the collection network.
- **Coverage of water treatment:** The population covered by water treatment services includes all those who live or reside in housing where sewage is collected by an authorized company or agency and treated in the disposal stage. The acceptable types of treatment include: activated muds, aerated stabilization ponds, underwater pipelines and others that produce the same results.

Using these definitions and recognizing the diversity of regional nations, CAF has estimated that USD 250 billion will be required to establish universal services. This investment will allow the region to close the gap in water infrastructure during the period 2010-2030. The total is equivalent to annual average investments of USD 12.5 billion (CAF, 2011). And this amount represents 0.3% of aggregate regional GDP for the year 2010, which is reasonable in relation to the budgetary allotments for investments, plus the contribution of rates to the overall investment under the criteria of efficiency already achieved by some countries in the region. This includes the benefits of providing adequate social protection. By making these investments, we can reach the goal of providing 99% coverage in safe drinking water, 94.4% in sanitation services and rainwater drainage systems in 80% of urban areas.

A Government Perspective: The sanitation services revolution in Chile

Eduardo Frei Ruiz-Tagle

Before going into detail on the enormous progress Chile has made in the sanitation industry, I think it is necessary to make a brief reference to water in the global context, which reveals a disturbing panorama.

Climate change, a product of global warming, the increasing population – there are now 7 billion people in the world, and the multiple uses of water and its overexploitation, are factors that have contributed to a significant degradation of water worldwide.

I would like to mention some data from the World Health Organization that are relevant in giving a clearer scope to this:

- Thirteen percent of the world population, or more than 600 million people, do not have access to drinking water.
- The shortage of safe drinking water is linked to 88% of diarrheal diseases, and 1.6 million people die from these diseases every year.
- By about 2015, 2.4 billion people will lack basic sanitation services, that is, only 200 million less than in 2002.

The Historical Record⁷

Fortunately, we have a different reality in Chile. But to thoroughly understand the process of modernizing the sanitation services sector in my country, it is necessary to go over the related history starting with its origins, going back to the remote Kingdom of Chile in colonial times, and from there touch upon the main milestones up to the threshold of the 21st century.

The birth of what we could call the “sanitation sector” goes back to 1578, a period in which Santiago’s inhabitants began to receive water from the springs and slopes of the higher elevations of the city (Tobalaba). A very important improvement occurred in 1763 when waterworks were built to carry water from the so-called Rabón Gorge (today called Ramón) to the Baquedano Plaza. Nevertheless, during the colonial period and for half a century of the republic, most of the inhabitants of Santiago used water mainly from the Mapocho River.

We have to go to the middle of the 19th century to see how our cities began to become part of the so-called modern times. It was during that period that important sanitation works were built. The first pipeline supplying drinking water to the city of Valparaiso was built in 1850. Later came the water supply plant in Concepcion, which was inaugurated in 1860. Five years later, in 1865, the water collection tanks were built in La Reina-Santiago. In 1888, the “Tarapaca Water Works” was established to supply water to the city of Iquique. And in 1894, several water works were carried out, such as the collection drains in Vitacura, the storage tanks in Antonio Varas (20,000 cubic meters) and the opening of the first stage of the city’s first sewer system, all of which covers almost five decades of accelerated growth in sanitation.

There was a growing conviction in our country that supplying drinking water and collecting sewage represented basic services for the comprehensive development of human beings.

In keeping with the development of an organized central government, the Drinking Water and Sewage Bureau was created in 1931 as part of the Interior Ministry. This agency was the first step in institutionalizing the nation’s sanitation sector and, in 1953, it was merged with the Hydraulics Department of the Ministry of Public Works (MOP) as part of a rationalization effort. This, in turn, gave way to the creation of the Sanitary Works Bureau (DOS).

7. An important part of what appears in this chapter is taken from the book, “Modernization of the Chilean Sanitary Sector,” edited by the Public Companies Service in 2006 and headed at that time by Carlos Mladinic, who served as Minister of Agriculture and Secretary General of Government during the term I served as President of Chile. Many other experts shared in putting out this book, individuals who had important responsibilities in the privatization of sanitary entities during my government.

This young institution was assigned practically all of the technical and administrative responsibilities related to drinking water, sewers and drainage systems and carried out its work with government funds, or at least with government support.

The Sanitary Works Bureau was set up with the goal of centralizing all activities related to drinking water and sewage services in one single agency, and it shared responsibilities with the Sanitation Services Division, which also was established in 1953 and which carried out studies, made projections, built and repaired drinking water and sewage networks; with Santiago's Drinking Water Company; with the City of Santiago, which managed the drinking water sector for central Santiago and with the Municipal Drainage Company of Valparaiso, which operated sewage services in Valparaiso Province.

In addition, these agencies worked in rural areas:

- The Rural Sanitation Office of the Ministry of Public Health, which carried out studies, made projections, built works and provided consulting services on operating and maintaining water supplies to organized rural towns with a population of less than 1,000.
- The Environmental Hygiene Section of the same ministry, which assisted in and supervised the supply of drinking water and sewage services, or basic sanitation, in rural areas with a disperse population.
- The Office of Sanitary Engineering of the Agrarian Reform Corporation, which is part of the Ministry of Agriculture. This office helped set up drinking water networks for peasant communities and for those areas where no comprehensive rural development projects existed.

Even though the intention behind setting up the Sanitary Works Bureau was to make progress in the sanitation sector and streamline it, in reality it turned out that the agency at this point needed a modernizing push so that it could respond adequately to new demands. Here's an example to demonstrate the situation: During the 1968-1973 period, financing for sanitation services consisted of 74% government outlays, 16% from external and other sources and only 10% from revenues generated by the organizations and companies themselves. Of all these funds, 57% went to investments in the sector, 13% to operations and maintenance and 30% to personnel expenses. Employment in the sector rose from 3,800 to 13,500 during the same period.

In 1977, the National Sanitary Works Service (SENDOS) was established as the sole entity operating in the sanitation sector, and inherited all the other agencies, offices and companies that operated in the sector. It was established as a government-owned autonomous institute, a legal entity operating under public-sector law and had its own capital base. It was a de-

centralized entity linked to the government through the Ministry of Public Works and consisted of a national office and 11 regional offices.

However, in the metropolitan area and in the Valparaíso region, two other agencies were set up: the Metropolitan Sanitary Works Company (EMOS) and the Sanitary Works Company of Valparaíso (ESVAL), both of which were autonomous state companies and were connected to the National Sanitary Works Service.

The national entity was charged with operating and maintaining the sanitation systems both in the cities and in rural areas, except for the metropolitan and Valparaíso regions. Among its other duties, it assumed the regulatory and supervisory responsibilities for the sector.

Under this system and working through the National Sanitary Works Service, the central government carried out the roles of regulator, supervisor and service supplier. This system was centralized in terms of investment planning, assigning resources and setting rates for the public, since the regional service agencies were simply operating units.

The government provided the funds needed for investments. Rates were set using a base of cross-subsidies among the country's regions to satisfy the needs of the population without considering the real cost of providing service.

Later, in 1988, a regulatory framework for the sector was defined for around the middle of 1989, a few months before the end of the military government. Under this, the Metropolitan Sanitary Works Company and the Sanitary Works Company of Valparaíso were converted into commercial enterprises – EMOS S.A. and ESVAL S.A., and both were companies affiliated to CORFO⁸. Around the middle of 1990, when the first democratic government took over after the dictatorship, the government completed the conversion of the 11 regional sanitation agencies that operated under the national service into commercial companies working in drinking water and sewage services. All were affiliated with CORFO.

It is worth noting that these reforms begun by the military government were aimed principally at privatizing the sanitation companies without consulting with the public, and doing so with very little transparency. For that reason, the government of President Patricio Aylwin (1990-1994) halted the sale of these assets but kept the sector operating within the new framework.

The goal of the democratic governments was to make these companies respond efficiently and adequately to the country's new realities and new requirements; achieve wider coverage of sanitation services throughout the country; effectively recover and maintain the country's infrastructure and establish rates that financed the real cost of providing these services, without using cross-subsidies among the regions.

8. CORFO was created in 1939 as a government entity with the goal of promoting the country's reconstruction after the earthquake that struck the southern section of Chile in January of that year. Over time, its role changed and by the 1980s, it was in charge of managing state enterprises.

This new model is made up of a combination of laws and regulations that were promulgated beginning in 1988:

Legal change	PUBLICATION DATE
DFL N° 70 of the Ministry of Public Works, covering Rates and Reimbursable Financing Payments. Modified by Law N° 19.549.	March 30, 1988
DS N° 109 of the Ministry of the Economy, Development and Reconstruction, which modifies DS N° 453 of January 17, 1990 that approved the Regulations to the Rate Law	April 18, 1998
DFL N° 382 of the Ministry of Public Works, the General Law of Sanitation Services. Modified by Law N° 19.549.	June 29, 1989
DS N° 240 of the Ministry of Public Works. Modifies DS N° 121, Dated June 11, 1991, that approved Regulations to the General Law of Sanitation Services.	18 de abril de 1998.
Law N° 18.902, which creates the Superintendency of Sanitation Services. Modified by Law N° 19.549.	January 27, 1990
Law N° 18.778, which establishes a subsidy for drinking water and sanitation services. Modified by Law N°19.549.	February 2, 1989
DS N° 195 of the Ministry of Finance, which approves the Regulations of Law N° 18.778.	July 17, 1998
Law N° 18.777, which authorizes the government to conduct business activities in the drinking water and sewage sector, and to establish corporations in so doing (EMOS, ESVAL). Modified by Law N° 19.549.	February 2, 1989.
Law N° 18.885, which authorizes the government to conduct business activities in the drinking water and sewage sector, and to establish corporations in so doing (this covers the rest of the country). Modified by Law N° 19.549.	January 12, 1990
Law N° 19.549, which modifies the legal regimen applicable to the Sanitation services sector (DFL N° 70, DFL N° 382, Law N° 18.902, Law N°18.777, Law N° 18.885 y Law N° 18.778).	February 4, 1998

(DFL) = Decree carrying the force of law(DS) (DS)
Supreme Decree

In this way, the government assumes the task of promoting efficiency in supplying these services and in ensuring the population has access. By creating the Superintendency of Sanitation Services (SISS)⁹, it gives a clear sign that it

9. The Superintendency of Sanitation Services (SISS), created in 1990, is the government entity in charge of regulating sanitation services. Its main responsibilities are to set the rates charged by companies providing drinking water and sanitation services to the public; authorize concessions in water and sanitation services; supervise the quality of service offered by the sanitation companies; supervise the industrial operations of companies that produce liquid industrial waste (Riles); participate in establishing norms and standards in the area of its competence and disseminate information on the market related to the national sanitary sector.

Table 4.1: **Investment in Sanitation Companies From 1990-2011**

Year	Total investment of sanitation companies (UF) ¹¹	Average annual value of UF	Total annual investment sanitation companies (Chilean pesos)	Total investment by sanitation companies (USD)
1990	2,541,415	6,986	17,899,185,845	58,705,102.8
1991	4,060,945	8,228	33,648,990,270	96,360,224.1
1992	5,353,913	9,359	50,449,922,199	139,172,199.1
1993	6,826,647	10,583	72,519,471,081	179,503,641.2
1994	6,339,611	11,499	73,114,733,663	174,041,260.8
1995	6,828,394	12,464	85,232,013,908	214,852,568.4
1996	6,392,396	13,249	84,891,018,880	201,545,628.8
1997	6,924,782	14,069	97,611,727,072	232,796,868.7
1998	8,170,673	14,664	119,986,333,005	260,726,495
1999	4,949,304	15,047	74,566,214,064	146,581,903
2000	6,747,018	15,740	106,393,726,842	197,134,939.4
2001	11,743,031	16,260	190,965,170,122	301,016,976.8
2002	15,538,440	16,730	260,175,639,360	377,503,829.5
2003	10,382,664	16,942	175,674,674,880	254,048,698.3
2004	6,157,895	17,291	106,636,267,715	174,956,960.9
2005	8,248,946	17,975	148,266,555,404	264,856,297.6
2006	9,483,260	18,356	173,885,055,360	327,961,251.1
2007	5,075,756	19,559	99,596,484,232	190,578,806.4
2008	6,274,935	21,434	134,609,905,620	258,021,670.7
2009	7,344,536	20,979	153,809,272,912	274,855,741.4
2010	5,342,342	21,444	114,619,947,610	224,612,870
2011	9,823,179	22,255	218,997,952,626	453,130,462.7

Source: Superintendency of Sanitation Services (SISS).

is putting the role of regulator above that of its business activities. The transformation of the aforementioned companies and regulatory entities – EMOS, ESVAL and the regional offices of the National Sanitary Works Service – into corporations that operate under private sector rules and are subject to oversight from the Superintendency of Securities and Insurance (SVS)¹⁰ and SISS, represented a major advance for the sector.

10. The Superintendency of Securities and Insurance (SVS) is the public agency which ensures that companies working in Chile's securities market and insurance sector comply with the laws, regulations, statutes and other legal norms that govern their activities.
11. The UF (Unidad de Fomento or Development Unit) is an adjustable unit of account used in Chile. The exchange rate between the UF and the Chilean currency is adjusted for inflation so the value of the UF remains constant.

These changes on the whole allowed the sanitation sector to satisfy its customers' needs in an efficient and timely fashion, increase investments and coverage, decentralize decision-making, make the sector's assets profitable and provide greater transparency to the operations of the companies working in this sector.

Setting up these companies implied the creation of a rate system based on efficiency and rational economics.

At the same time, we established a more independent regulatory body for the system and a subsidy on consumption of water and sanitation services for low-income residential users.

Under this system, the sanitation companies consolidated and increased their investments to an average annual level of USD 184 million in the 1990s, a figure three times higher than the USD 68.6 million per year average for the previous decade.

But in spite of these positive advances, the new regulatory framework created some significant legal gaps, for example leaving the issue of rainwater in no man's land and placing the rural population on the margin of the new institutions.

The Revolution Moves Ahead

My government's guiding principle was to solve people's problems. We proposed a vast action program in the public sector, aimed at bringing the services provided by the state up to date with the goal of substantially improving our capacity to serve the public in a comprehensive and unobstructed manner.

This was demonstrated with particular force in the area of social infrastructure. In particular, we considered it a responsibility of the government to ensure that the entire population had access to sanitation services.

Moreover, this policy sought to preserve national interests, achieve sustainable national development and especially to protect our citizens. Even at this time, there were many families that lacked access to safe drinking water and sewage services.

At the same time, many beaches and our extensive coastline suffered from levels of pollution several times greater than was standard in Chile. And in several agricultural areas, water used for irrigation failed to meet our standards and, even less, international standards, which represented a severe obstacle for our desire to export to the European and North American markets, since our products did not comply with the sanitary norms that these countries demand¹².

12. The quality norms for drinking water are: Official Chilean Norm (NCH) 409/1 on requirements (1984); NCH 409/2 for sampling (1984); NCH 691 on pipelines, regulation and distribution (1998), and NCH 1.333 for water quality in different uses (1978). The quality norms for waste water are found in Law N°

Besides the commercial risks this implied, there was also a permanent danger of illnesses for people, which translated into higher spending on health services. In fact, several international studies agree that for every dollar invested in cleaning up waste water and sewage, \$2.50 are saved in health costs.

The total investment we needed to expand drinking water and sanitation services was USD 1.85 billion, while the cost for sewage treatment plants was approximately USD 1.2 billion, for the time frame between 1994 and 2000¹³.

When I took over the government, sewage treatment services reached 12% of the population nationwide and we set the goal of increasing coverage to 70% in 10 years. To achieve this, in addition to these investments, we needed to act quickly, use technologies that we didn't have at the time and, more than anything else, find new solutions.

All of this, as you can imagine, was a challenge that the Chilean government could not confront alone, since it would have put the country into excessive debt. But the problem was not only financial resources, but also management. It was time to create a profound change in the government's role, moving from a government that ran businesses into one that regulated businesses, and by so doing, attracted capital and technology from the private sector.

It is worth remembering that up to this point, sanitation services had been developed by the government, with very few exceptions. And in keeping with the policies of that time, most people certainly were inclined to keep these services exclusively or, in the majority of cases, in the hands of the public sector.

But the issue was a question of logic. We should know how to set priorities and obtain private capital for all those sectors where we had a real capacity to do so. In that way, we could focus our efforts much more on social investment. For that reason, we chose to transfer the operation of sanitation companies to private hands. And this decision was contained in the law that was drawn up, approved and put into force during my presidential term.

I still remember the long and arduous debate we had on the law, especially in the National Congress. The revolution we wanted to launch was seen by some as an extremely dangerous process. In particular, they feared that management of a basic sector by private companies would generate excessive costs to users. Others predicted that we would fail, because no one would be interested in investing the enormous amount of money the country needed

19.300 on Environmental Base Values (1994) and in the Regulations of Supreme Decree N° 30: System for Evaluating Environmental Impact (1997).

The body of legal instruments related to the discharge of liquid industrial wastes (Riles) are Law N° 3.133, on neutralizing waste products produced by industrial operations (1916), and the Regulations of the Ministry of Public Works N° 1.172 (1997); the provisional technical norms related to the discharge of liquid industrial wastes (SISS, 1992); the technical norms – Supreme Decree of the Ministry of Public Works for regulating pollutants related to the discharge of liquid industrial waste in surface water bodies (1998) and NCH 609 on the regulation of liquid industrial waste released into the sewer system (1998).

13. According to estimates of the Superintendency of Sanitation Services (SISS), based on the development plans provided by the sanitation companies.

in a risky business. They pointed out that the sanitation sector has a peculiarity, since its assets are sunk costs, that is, once the investments are made they cannot be recovered and dedicated to other projects.

But we had an even more powerful reason to maintain the strategy we chose: The conviction that there were many infrastructure activities that could be managed by the private sector with greater efficiency, more financial resources and better technology, while at the same time depoliticizing the sector. The conclusion, then, was clear: If we wanted to be a modern country, among other things, we could not have polluted rivers, lakes and beaches because we were incapable of treating and processing sewage. And much less acceptable was the fact that thousands of Chileans still lacked access to sewers.

Therefore, this reduction in the role of the state in building infrastructure had to be accompanied by actions that provided incentives to private sector participation. And this would be done via associations, incentives and guarantees.

This translated into a new regulatory framework. It was indispensable to do this, since at this new stage, the country required a regulatory body that had the power and capacity to ensure acceptable quality service to the population. This body would also be able to request the information necessary to set rates that actually reflected the efficient costs of providing service.

A Clear and Efficient Regulatory Framework

The first step, then, was to complete a regulatory framework that would: ensure that service functioned without distortions in a sector where there was practically no competition; clearly establish the powers of the regulatory body for suitably resolving conflicts of interest between the service provider, consumers and the community in general, and make the rate setting process as transparent as possible, in order to eliminate excessive charges and ensure that sectoral investments were financed correctly.

To achieve this, it was necessary to deal comprehensively, and under a joint vision, with the law controlling the sector, which was Law N° 19.549, published in the Official Register on February 4, 1998.

The most important reforms that were introduced in this regulatory framework are the following:

- A modification of the General Law on Sanitation Services, contained in DFL N° 382 of 1988, issued by the Ministry of Public Works. This set out new requirements and better guarantees for complying with development plans.
- Greater control over the transfer or assignment of concessions; greater leeway and provisional administrative powers for the Superintendency of Sanitation

Services in cases where a concession becomes insolvent or bankrupt; stronger requirements relating to the delivery and quality of sanitation services; the obligation to connect installations in order to guarantee the continuity and quality of service; regulation on the use of networks and the obligation to certify service viability.

- Restrictions were established on the property held by the sanitation companies regarding the number of companies in possession of a controlling interest.
- It was established that no company could have more the 50% of all clients nationwide and limitations were set on superimposing natural sanitation monopolies on electric or telephone companies.
- Limits were set for contracting services or acquiring goods worth more than 500 UF from related companies, unless this was done via public bidding. Also, the Superintendency of Sanitation Services must be informed annually on any of these transactions. All purchases or service contracts for more than 5,000 UF must be carried out through public bids. Violations can result in liens on company stock or a suspension of rights associated with this stock, through a coordinated action of the Superintendency of Sanitation Services and the Superintendency of Securities and Insurance.
- The Superintendency of Sanitation Services¹⁴ was granted more authority in terms of issuing new fines and increasing the amount of fines, raising the maximum from 1,000 monthly tax units to 10,000 monthly tax units. In addition, the agency can shut down companies, require information, cite concession management, etc., in spite of any resources the eventual violators may assert.
- CORFO and the government cannot hold less than 35% of the shares of the sanitation companies unless they do not exercise the right to subscribe to capital increases, and the voting of these shares will always be required to approve matters contained in Article 67 of Law N° 18.046 on corporations. The latter includes, among other things, breaking up the company, converting or merging the company, change of domicile, reduction of capital, changes in the powers of the board, limitations on the powers of management, liens on assets, liabilities or total assets, for a period of 10 years beginning on the date the first time the government's participation is less than 35%, and whenever its participation is greater than or equal to 10%. It is worth noting that subsequently, the requirement for maintaining 35% of shares was eliminated.
- Allow employees in sanitation companies owned by private capital to acquire shares via their compensation for years of service. They can also buy additional shares with financing from CORFO.
- Individuals or groups who have a controlling interest or decision-making influence in the management of public service concessions that are natural mon-

14. In general, this reform was aimed at authorizing more financial resources, more autonomy and additional powers to the Superintendency of Sanitation Services. It also gave the agency more supervisory powers over the sector.

opolies in electric power distribution or local telephone service and have more than 50% of total users, and that are located in areas where concessions are granted to sanitation service companies, are banned from owning shares in the sanitation enterprises.

- The law also establishes precise rules on the rate system: It increased the precision, quality and transparency of the methodology and procedures used to calculate and set rates; reduced the asymmetry of information on rates by setting up an interchange of rate studies; improved the procedure for resolving discrepancies, setting up a dichotomous decision by a Commission of Experts; simplified the calculation of the rate of capital cost; eliminated two of the three fixed charges (previously charges were levied for drinking water, sewage service and customers); produced greater transparency and participation in the rate-setting process, by making records of the process public: the interchange of studies, minutes of the agreement or of the expert decision, as well as permitting public participation in commenting on the bases of the rate study.
- The legislation clearly indicated that sanitation firms which are units of CORFO can merge and transfer the right to operate their concessions.

One important aspect of the regulatory framework was the decision to replace general subsidies, which produced rates lower than those needed for self-financing, with a system of subsidies focused on the country's low-income families.

Law N° 18.778, published in the Official Register on February 2, 1989, established the terms for providing a direct subsidy to residential customers for use of sanitation services. This system is administered by the city governments, which are in charge of enrolling and selecting applicants and advising sanitation companies of the list of those selected. When each water bill is issued, the company indicates how much the customer must pay and how much the city must pay.

In this way, the Chilean government pays a percentage to the sanitation companies, between 25% and 85% of the customer's monthly bill, for consumption of up to 20 cubic meters per month. This payment is made through the appropriate city government. In effect, due to lower water consumption by low-income families, the subsidy has operated on a billing base of 15 cubic meters per month. Moreover, starting in 2005 under the Chilean Solidarity Social Protection System, about 5% of the subsidies receive a 100% benefit covering domestic consumption of up to 15 cubic meters per month.

Selection of those who receive the subsidy is done using information supplied on an identification card called "CAS" (Ficha de Caracterización Social or Social Characterization Identity Card), a tool that allows the government to focus and authorize its financial resources in a just and equitable manner.

Subsequently, a methodology was used to ensure effectiveness and equality in assigning subsidies by region, according to current rate levels. Families' income levels were taken into consideration and the rule was that the monthly water bill should not be higher than 3% of family income.

To qualify for the subsidy, applicants had to meet these requirements:

-
- They must be permanent residents of the housing unit, whether they are owners, renters or family.
 - Those living there must not be able to pay the entire bill for sanitation services.
 - They must not have unpaid debts for sanitation services.
 - They must apply in writing for the subsidy to the Social Department of their local city government.
 - They must present the most recent paid bill. If there are unpaid bills for this service, they must provide a payment agreement.
-

The city government analyzes and verifies that each applicant is complying with the requirements, and the city government grants the subsidy via a decree issued by the mayor's office (Decreto Alcaldicio).

The subsidy is authorized for a maximum of three years and is renewable for another three if the family is facing the same conditions under which it was approved.

If the beneficiary has three successive unpaid bills, moves, experiences improved socio-economic conditions or reaches the benefit time limit, the subsidy can be halted, but the beneficiary can reapply later.

Each year, the Ministry of Planning and Cooperation (MIDEPLAN) informs the Ministry of Finance on the number of subsidies per region, the volume (in cubic meters) of use covered by the subsidy, the scale of the subsidy and the budget required for financing the plan.

Putting this subsidy into practice was not easy. It required a great deal of coordination among the city governments, as well as support from the Sub-Secretary of Regional Development, MIDEPLAN and the private sanitary companies. These concerns provided a lot of help in terms of human resources and materials and contributed to the implementation of this benefit.

The existence of this consumption subsidy and its application represent a major contribution to a broad sector of low-income families and, at the same time, significant help in applying rates that cover the real cost of service. Two years after this benefit was started (1991) only 54% of the subsidies decreed by the Ministry of Finance had been delivered to applicants.

In 1992, this figure rose to 79%, then to 94% in 1993 and currently stands at practically 100%.

During 2011, the subsidy benefitted 15.4% of urban customers nationwide and represented 6% of the sector's sales. The largest share of families received subsidies in Atacama and Aysen.

Without a doubt, the application of this direct subsidy on demand would not have been possible if Chile had not brought together all the conditions that are fundamental for this type of benefit. These included, in the first place, a context of economic growth, orderly public finances and a progressive decline in poverty. In addition, there was the political will to establish a transparent subsidy system with little or no political patronage and government management capacity.

Clearly, after a long process in the National Congress¹⁵, the country was able to implement a strengthened regulatory framework, which included Chile's regulatory experience in other sectors of the economy, as well as international regulatory experiences. All this was designed to ensure that every aspect of rates, subsidies and quality of service in the sanitation sector would not be affected by whether the service suppliers were private or public, and to provide certainty that community interests would be protected. Consumers are protected by new sanitation legislation and by oversight from the Superintendency of Sanitation Services.

As a result, between 1998 and 2000, private investors took over majority positions in the country's largest water and sewage properties: the Sanitary Service Company of Valparaiso, concessionaire for the Valparaiso region; the Metropolitan Sanitary Works Company (EMOS S.A.) and the companies that previously operated in the regions of O'Higgins, Los Lagos and Biobio, which are, respectively ESSEL, ESSAL and ESSBIO.

By December of 2011, the total number of customers (properties) registered by the sanitation companies operating in the country's urban areas reached 4,574,451, of which 99.4% were served by the 24 municipal companies, taking into account those that served more than 3,000 customers. This total for 2011 includes 1,332,187 more customers than in 1998, the year that we began putting private capital into sanitation services. In 1998, the total number of subscribers was 1,242,264.

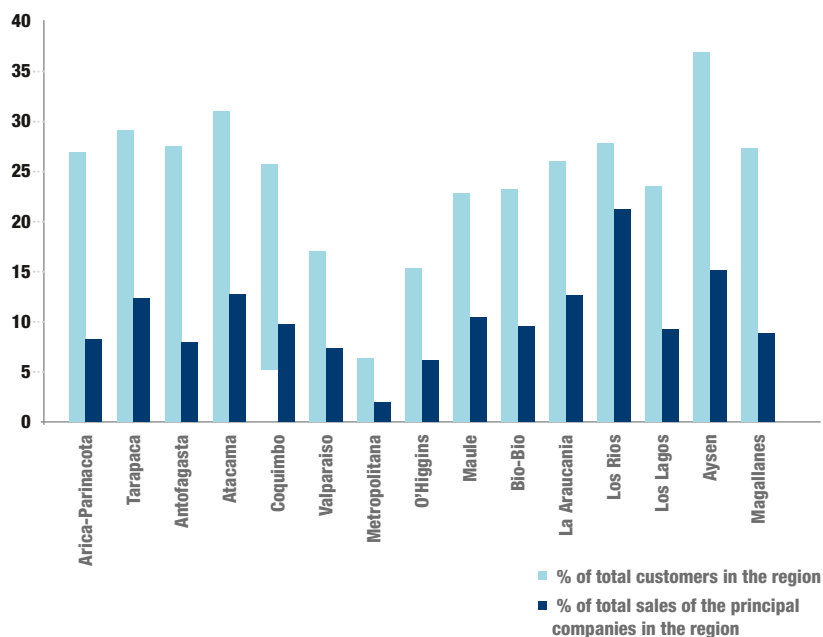
15. The bill that modified the laws governing the sanitation services sector was introduced to the National Congress on May 16, 1995, and was approved on November 18, 1997. The new law took effect on February 4, 1998 when it was published in the Official Register.

Table 4.2: **Subsidies for Consumption of Drinking Water (billions of Chilean Pesos)**

Year	Total	Year	Total
1990	9	2001	21,246
1991	554	2002	21,351
1992	3,781	2003	24,712
1993	7,972	2004	27,425
1994	9,942	2005	27,764
1995	12,772	2006	32,574
1996	15,316	2007	35,519
1997	16,554	2008	42,345
1998	18,611	2009	46,651
1999	20,242	2010	47,900
2000	22,071	2011	48,319

Source: Superintendency of Sanitation Services

Graph 4.1: **Subsidies by Region as a Percentage of Sales and Clients (2011)**



Source: Superintendency of Sanitation Services

Changes Made Following My Government

Under the government of President Ricardo Lagos Escobar, which followed mine, officials decided to study alternatives that did not involve transferring to private companies ownership of the concession, the rights to water and the assets of government-owned sanitation companies. The decision was to transfer the right to exploit sanitary concessions for 30 years to a new privately-financed corporation. At the same time, the assets of the operating company would be placed in commodatum¹⁶.

Under this plan, the State Sanitary Company continued to exist as an open-capital company (sociedad anónima), subject to private sector laws, maintaining ownership of the sanitary concessions, real estate, rights and obligations, rights to take advantage of water and other related and/or affected assets required to work these concessions.

The main characteristics of this new modality are as follows:

- The concession runs for 30 years from the contract date. At the end of that period, the right to make use of the concessions and all assets placed in commodatum must be returned to the State Sanitary Company.
- The operator makes an initial payment to the state enterprise for the right to make use of the sanitary concessions, in keeping with the offer provided in the public bidding process.
- The operator can make use of the concession, invest and develop, build, preserve and maintain the sanitary infrastructure.
- The operator receives the right to collect 100% of the revenues from the concessions and from other non-regulated activities in the sanitary sector.
- Under rights and obligations are the following: management of operations, negotiations on rates and collection of rates and other income, financing and carrying out investments for development plans and assuming the contractual position of the licensee, including labor obligations.
- Fixed assets, sanitary concessions and the rights to take advantage of water are delivered to the operator in commodatum. At the end of the contract, the operator must return these assets, as well as any related, acquired or assets built and financed by the operator.

16. The reason behind this change was political. In the new government, there simply were people who did not agree with allowing private capital to invest in the sanitation services sector if it involved a transfer of ownership.

The main facts that occurred in the each of the bidding rounds are summarized below:

- **2001 bidding process:** Bidding was held to transfer the sanitation exploitation rights of ESSAR S.A. and ESSAM S.A. Only the contract for ESSAM was awarded. There were no bids for ESSAR.
- **2002 bidding process:** Bidding was held for the transfer of exploitation rights of ESSAR S.A., EMSSA S.A. and ESMAG S.A. Only the EMSSA contract was awarded. There were no bids for the ESSAR contract and a bid for ESMAG was rejected since the price was below the minimum the government sought.
- **2003 bidding process:** Bidding was held for the contracts of ESSAT S.A., ESSAN S.A., EMSSAT S.A., and ESSCO S.A. Companies were allowed to make bids for multiple contracts. The only bid rejected was for ESSAT, since it was lower than the minimum price or reserve.
- **2004 bidding process:** Participants again were allowed to bid on multiple contracts and bidding was held for ESSAT S.A., ESSAR S.A. and ESMAG S.A. All three were awarded. The government received 25,307,051 UF, equivalent to more than USD 1.11 billion.

The government also received 39,000 UF (USD 1.7 million), an annual payment the consortia must make for the life of the concession contract.

It is worth noting that in the first two bidding rounds the government did not obtain the success they expected, basically because of a lack of bidders. After that, changes were made in the Contract for the Transfer of Exploitation Rights to allow bidding for multiple contracts. The idea was to increase the viability of obtaining resources from the financial system and make the bidding more attractive for investors. Under this model, bidding for the remaining eight government-owned properties was held.

And finally, the current government decided to sell a major part of the shares it still held in the sanitation companies Aguas Andinas, ESVAL, ESSBIO and ESSAL, staying with a stake of about 5% in each company. These share sales brought in a one-time payment of more than USD 1.6 billion. But at the same time, the government lost about USD 90 million per year in annual revenue from these companies. Indeed, in some years, the revenue exceeded USD 100 million.

What We've Achieved

With great satisfaction, I can say today that the sanitary policy advanced by my government has been a definitive success and has been recognized internationally as a model for transparency, reciprocal advantage for the govern-

Table 4.3: **Present State of Ownership of Companies Transferred to the Private Sector**

Company current name	Region	Year Transf.	Principal shareholder	Percent owned	Number customers
Esva	V	1998	Ontario Teachers Pension Plan	73.3 %	552,186
Aguas Andinas	RM	1999	Agbar-Suez	51.2 %	1,748,979
Essal	X y XIV	1999	Aguas Andinas	53.51 %	198,800
Essbio	VI y VIII	2000	Ontario Teachers Pension Plan	89.4	679,018
NuevoSur	VII	2001	Ontario Teachers Pension Plan	30-year concession	227,273
Aguas del Valle	IV	2003	Ontario Teachers Pension Plan	30-year concession	190,514
Aguas Antofagasta ¹⁷	II	2003	Grupo Luksic	30-year concession	150,646
Aguas Patagonia de Aysén	XI	2003	Hidrosán-Icafal-Vecta	30-year concession	25,564
Aguas Chañar	III	2004	Hidrosán-Icafal-Vecta	30-year concession	83,614
Aguas Araucanía	IX	2004	Marubeni and INCJ	30-year concession	206,048
Aguas del Altiplano	XV y I	2004	Marubeni and INCJ	30-year concession	142,940
Aguas Magallanes	XII	2004	Marubeni and INCJ	30-year concession	48,441

Source: Management Report on the Sanitary Sector 2011.

ment and private investors, and especially because it started a real revolution in the industry of water, sewers and sanitation.

Today, the urban sanitary sector in Chile is made up of 57 companies, of which 53 are operating and serving exclusive concession areas in 15 regions. They cover a universe of over 15 million people in 359 cities.

The rural areas of the country are supplied mostly by cooperatives and rural drinking water committees, and most of these are part of the Rural Drinking Water Program at the Ministry of Public Works. These entities are not covered by the regulatory framework applied to the urban concessions.

Currently, there are about 1,600 rural services supplying drinking water to 2.2 million people.

Since this process began, private companies have invested more than USD 3.5 billion, which means the government has simultaneously saved the same amount and can inject more financial resources to optimize its work in other areas. In the three years after the start of the process in 1998, the government received more than \$1.5 billion.

17. Service for treating sewage in the city of Calama was given in concession to Tratacal in 2007.

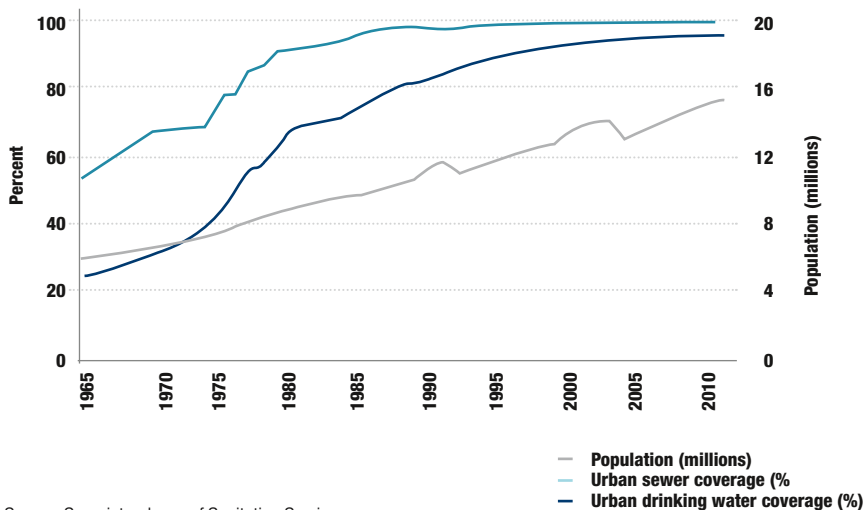
During this dizzying process, the vast transformation, investments and application of new regulations, it became clear that not only could the private sector invest, but it could also invest well and benefit our citizens' quality of life.

The figures speak for themselves. When we began privatizing the drinking water and sanitary sector in 1998, there was 91.6% coverage of sewer systems in urban areas, while sewage treatment was 16.7%. Now, 14 years later, drinking water reaches 100% of the population, sewers 96% and sewage treatment 90%. By the end of 2012, these latter figures will reach 100%. All this was achieved in just 14 years, which places an even higher value on the work we've carried out.

The World Health Organization estimated urban coverage of drinking water and sewer systems by looking at the population that has improved sources of drinking water and sewage services. In this way, they refer not only to service obtained from public networks, as the Superintendency of Sanitation Services in Chile does periodically, but also to water obtained from wells, protected springs and rainwater, and, in the case of sanitation, septic tanks and improved latrines or composting toilets.

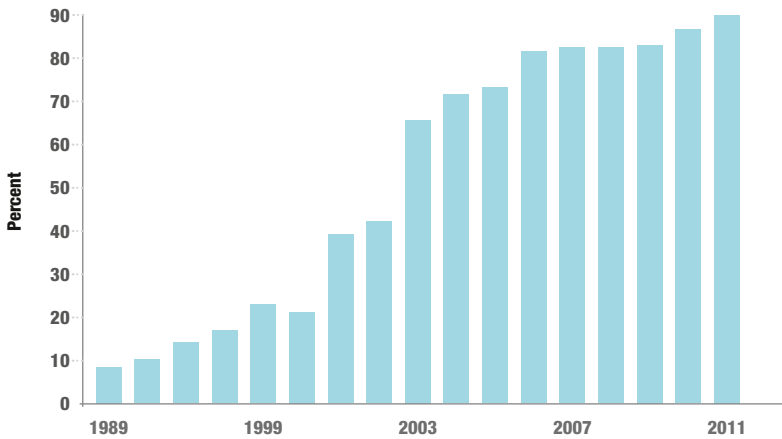
Using these concepts, the organization compares more than 10 countries. And for the year 2010, Chile had 99% coverage nationwide in drinking water and 98% in sewers. This rating places Chile in second place in Latin America for drinking water, following Brazil and Uruguay, which have 100% cover-

Graph 4.2: **Historical Evolution: National coverage of drinking water and sewers in urban areas**



Source: Superintendency of Sanitation Services

Graph 4.3: **Historical Evolution: National coverage of sewage treatment**



Source: Superintendency of Sanitation Services

age, as do the majority of European countries. As for sewage, Chile also took second place following Uruguay, which has 100% coverage, as do practically all the European nations.

In terms of sewage treatment, figures from the Association of Regulatory Bodies for Drinking Water and Sanitation in the Americas (ADERASA), indicate that the average figure for Latin America was 41% in 2009. Data from members of the OECD show that Chile has reached sewage treatment coverage levels of this group of nations, taking fourth place after the United Kingdom, Switzerland and Germany.

As I mentioned earlier, prior to the government's decision to sell most of the shares it held in the privatized sanitation companies, the government had between 30% and 35% of shares in these concerns (now the figure is 5%), which allowed it to sit on the boards (which it continues to do) and obtain dividends from the companies.

The government's shares are worth more in constant currency than what it received over a decade ago when it sold control of the companies to private parties, and the dividend it received until 2010 (USD 90 million per year) was greater than the cost of financing the demand subsidy for the nation's poorest (USD 80 million per year).

Moreover, the private sanitation companies had a shareholder pact which gave the government a veto over the companies' basic operations. This allowed the government to take precautions in terms of compliance with the development programs, the permanent and relevant flow of information and everything to do with operating relations with related persons.

Table 4.4: **Urban Coverage of Sewage Treatment as a Percentage of the Population Connected to Sewage Systems**

Country	Year information gathered	Cobertura (%)
Mexico	2009	42.1
Greece	2009	66.8
Portugal	2009	70.6
Japan	2009	73.7
United States	2008	73.7
France	2004	80.1
Norway	2010	80.2
Italy	2008	82
Finland	2010	83
Canada	2009	84.3
Sweden	2006	86
Korea	2009	89.4
Denmark	2010	90.3
Spain	2008	92
Chile	2011	94.2
Germany	2007	94.4
Switzerland	2005	96.7
United Kingdom	2010	96.8

Source: Environmental Statistics, OECD

Finally, by bringing in private capital, water was taxed as property attached to the sanitary concession, so that any transfer of title would have to be approved by CORFO and the Superintendency of Sanitation Services¹⁸.

Moreover, by cleaning up its rivers, lakes and beaches, Chile was able to substantially reduce government spending to treat intestinal illnesses, because by treating sewage, we reduce the incidence of typhus and hepatitis to minimal levels. For just this item alone, the contribution of the sanitary industry in the last 14 years has meant savings in health costs for Chile of some USD 4 billion¹⁹.

18. Water rights were transferred to the new owners of sanitation companies, but they could only be used for activities directly related to the business. They could not be sold, transferred or donated without authorization from CORFO and the Superintendency of Sanitation Services.

19. Estimate based on the parameters set by the World Health Organization, which says that for each dollar invested in cleaning up dirty water, the country saves USD 2.50 in health care costs.

This has been part of a strategy that we designed and advanced during my government, intended to strengthen a productive and transparent public-private association to address infrastructure issues. Under this same plan, we developed telecommunications (today Chile has 100% penetration in mobile phones), highways, seaports, airports and prisons, and concessions are being offered for the operations of 10 hospitals.

Today's challenges

In spite of all the advances we have made and that I have described in overwhelming detail, I think it would be a mistake to think that we are finished. To the contrary – and far from the temptation to feel complacent – I think there are several other challenges we should focus on in the future.

I refer to the following:

1. In regulatory issues, I think we need to confront the inorganic growth of our cities and, at the same time, the operating space of the companies, in the sense of how are the services you are providing take into account (or not) growth in the cities and changes in urban boundaries.
2. Reduce water losses. Each year the country receives about 120 billion cubic meters of water. Among all related activities, including drinking water and industrial and agricultural use, we only use about 18 billion. The rest flows into the sea, and it gets there very quickly because of the slope of our mountains and hills. It does not replenish our aquifers or our surface reservoirs, which are no longer adequate.

When climatic conditions were stable and the country's needs were smaller – because the population was smaller and there were less productive activities – we were rich in water. The water that was available in rivers, canals, reservoirs and aquifers was enough for everyone.

But conditions have changed. There is less rain, the water falls intensely in other areas and rainfalls are shorter. Thus the water runs off, is not gathered and does not penetrate the soil. Our other source – snow – is also declining because the isothermal layer rises and snow does not accumulate in the same volumes as before. Also, there is less ice due to melting. On top of this are increasingly frequent and intense droughts, while water demand is growing as the economy develops.

The result is that the country has a water deficit that is already critical. The rivers and estuaries between the regions of Arica-Parinacota and La Araucanía, and the aquifers north of Santiago, are almost exhausted.

We therefore must act rapidly and adopt both long and short term measures. Among the first steps is the construction of reservoirs with very large

storage capacities. The problem here is that these works require 10 to 15 years to complete. The government has announced the construction of 10 reservoirs, and has assigned priority to four of them during the 2010-2014 period, while the rest would be ready within a period of 10 years. The goal is to move from a storage capacity of 4.05 billion cubic meters that exists now to 5.5 billion cubic meters.

And for the second steps, the subterranean aquifers come into play. The country has a gigantic subterranean reservoir with more than 400 billion cubic meters of water. This means that even if it does not rain, there would be enough water for seven years.

What we've been doing is taking replenishing water out of the aquifers every year, and so they do not recover. I think, therefore, that more control is required, that we must increase our ability to determine how much water is available to prevent a future shortage.

The complication is that as the aquifer dries out, the soil is compacted and it loses its capacity to store water. The alternative is to refill the aquifer artificially, and to do that we need systems that trap water for longer periods so that it can be absorbed.

Another option is building a 1,000 kilometer pipeline under the sea to move water from the rivers of the central areas of Chile to the country's north, at half the price of desalination plants. The feasibility of projects like this is already under study.

Every sector understands this issue – they know what they have to do, how much water they use and how they use it. The sanitation companies supply the urban population with 5% of the water, mining uses 6%, industry consumes 12% and agriculture 77%.

It is precisely this sector (agriculture) that must make efforts to use water more efficiently.

3. We need to improve the water market and to do this, we need information. According to the last study done by the World Bank and the General Management for Water at the Ministry of Public Works, there is no transparent and objective public register in the country of fundamental water rights, and it isn't known if these rights are real or nominal. This is fundamental to know if water is being over-exploited. One additional fact: The last water assessment in Chile was done in 1987, which makes it difficult to plan since we don't have updated information.
4. Chile, like the majority of other countries in the world, is living through a period of increasing water shortage in the face of growing demand. We have seen a 50% reduction in water availability in the last 50 years as a result of climate change. The tendency is a continued decline in water supply and the certainty that we will

face extreme water events in the future, as well as a worsening of conflicts between different sectors and interests, such as food, water and energy.

In this context, we have to understand that the sustainability of this resource will come from comprehensive management of the hydrological basins, which are the real territorial bases for discussing and resolving water problems.

In addition, one of Chile's great challenges with respect to water is to establish a real and transparent water market where this resource – which is a national property for public use – will be used rationally, and not just at the discretion of those who have the economic capacity to buy water rights that were, in their time, granted perpetually by the government at no cost.

This problem was partially corrected by Law N° 20.017 (2005), which established new powers for government administration. But despite this, many of the necessary changes could not be implemented due to constitutional impediments, and because of the veto exercised by the opposition at that time.

5. Resolve problems related to rain water. There is a bill that regulates this issue and it was sent to the National Congress in June of 2003. Unfortunately, its progress has been paralyzed since January of 2005, that is, over seven years.²⁰

It is therefore time to seek the necessary agreements so that, once and for all, we can build the infrastructure that our cities need so that they don't collapse every time it rains. Several studies agree that the country should invest more than USD 1.7 billion to build primary rain water collection systems in the country's 22 main cities. Once this problem is resolved, a thorough technical review of the master plans must be carried out to reach an agreement that would balance and reconcile social benefits, while providing incentives to private companies that wish to participate in this effort.

6. Make advances in secondary rule and regulations to protect the quality of all our bodies of water, taking into consideration the requirements of each specific territory. This means that the sustainable use of water demands a territorial vision, using transparent information and agencies that comprehensively watch over our resources, ensuring their efficient use.

20. The bill was paralyzed because of doubts about its constitutionality, after the sanitation companies complained that it would oblige them to charge for evaluating rain water. A majority in the Senate's Committee on the Constitution, Legislation and Justice voted that elements in the bill were unconstitutional.

7. Our river flows must be used in an ecologically sound manner and we must raise standards for reducing pollution in water used in different productive sectors.

According to the most recent reform of the Water Code, carried out in 2005, the office of the General Management for Water is the agency in Chile charged with setting criteria for minimum ecologically sound water flows in the rivers, to respect the new rights of commercial use for water in the country's riverbeds. The main criticism to this procedure is that the authorities have not followed consistent rules and apply different norms, even in the same river basin.

Subsequently, Law N° 20.417, which created the Ministry, the Environmental Evaluation Service and the Superintendency of the Environment, published January 26, 2010, also established rules which governed the criteria for determining the minimum ecological flow for authorizing rights of use for river waters. These rules have not yet been put into effect.

8. I cannot fail to mention the marked difference that exists between drinking water, sewage and water pollution control in the urban and rural areas. Rural areas have about 1,600 drinking water systems to meet the needs of much of the 2.2 million people who live outside the cities.

The problem is that only 300,000 people have sewers and sewage treatment facilities, while another 500,000 use septic tanks. As a result, 1.4 million Chileans who live in rural areas have no basic sanitation services.

These countrymen and countrywomen have the right to the same quality of life as those of us who live in cities. The country, then, has the obligation to develop a plan and find the financial resources to make this happen.

Epilogue

We have made great advances in only a few years and this should be a great source of pride for Chile. The success of this process is due to a group of people who worked on it, and who not only had the necessary political support to push ahead, but who also had the determination not to be daunted by criticism and the fears of those who opposed our plans.

Moreover, the new regulatory framework established clear rules of the game and provided legal certainty to investors, who took the risk of launching a new and innovative business in a sector to which they had hardly any previous access.

The results are clearly visible and I believe that this experience can and must

be repeated in other sectors. The current authorities, or those who come in the future, will be in charge of exploring new niches of public-private cooperation, so that our country can continue advancing toward full development.

To achieve this, all we need are political will, unity of purpose and perseverance. We have already demonstrated that it can be done and, thus, this is a good reason to keep following this path.

The Economic Perspective: A social and fiscal policy for water and sanitation

José Antonio Ocampo

The debate over social policy in recent decades has been permeated by the battle between two visions: one which defends access to social services and basic public services²¹ as citizens' rights and thus bases social policy on the principals of universality and solidarity that are inherent in these rights; and the alternative vision, which stresses focusing government subsidies on the poorest sectors who use these services. These two visions are not completely antagonistic, since the goal of making basic services universal can (and should) include focused subsidies as one of its tools. Nevertheless, the first has a comprehensive vision of government action and its support for equality, while the second starts with a rather residual concept of public responsibilities. The first tries to avoid segmentation in providing social and public services, while the second in a way promotes segmentation by defining public service access to the poor in a different way than to the general population. Moreover, although both visions are

21. Here, I'm following the terminology used in my country, Colombia, where a differentiation is made between social services and public services, and where basic public services (or home-related public services) are defined as water, sanitation, electric power and telecommunications.

consistent with the possibility of providing the services through variable public-private programs, those who defend the first vision favor services delivered by the government.

This essay defines water and sanitation as basic public services and defends the need to base public policy in this field on the principles of social citizenship. It is divided into five sections: The first reviews the debate over universal services vs. focusing subsidies on low-income groups. The second focuses on more recent ideas about universality and social citizenship. The third briefly reviews the literature on the redistributive effects of social policy. The fourth offers some complementary thoughts on water and sanitation services. The fifth summarizes the main conclusions.

The Battle between Two Concepts of Social Policy

The first of these aforementioned visions dates back to the liberal notions of education and public health as basic services for the population. It gained an additional impulse from the ideas about social security that Bismarck introduced in Germany at the end of the 19th century, and was articulated by the social demands that union and socialist movements put forward after that time. It finally reached its highest expression in the development of the Welfare State in the developed countries starting in the 1930s, and especially after World War II.

In Latin America, the advance of these principles and programs was much more limited due to the lack of development, the widespread history of inherited inequality and – in many countries – the restricted presence of formal employment, which was the base for developing services related to social security. The earliest advances were made in a handful of nations, especially in the Southern Cone and Costa Rica, and reflected both early economic progress and strong commitments to social development and equality during certain phases of their history. The result of all this at the regional level was the development of what I have described in other papers as segmented and incomplete Welfare States (Ocampo, 2004). These states fundamentally benefitted middle-income groups (including government employees, factory workers and employees in modern services), and marginalized the poorest sectors, among them rural dwellers.

In its contemporary expressions, this vision views access to basic social and public services as inherent to social rights and, as a result, places social policy in the center of the social pact and social cohesion. It is worth recalling that social rights were enshrined in Articles 22 to 27 of the Universal Declaration of Human Rights, and later in the International Pact on Economic, Social and Cultural Rights of the United Nations. According to these concepts, the previously mentioned rights can be understood – in the case

of basic public services – as inherent to the right to adequate housing and, in the particular instance of water and sanitation, as an essential element in achieving the right to health. At the same time, as a result of the struggle in civil society, the United Nations in 2010 established the right to water and sanitation within the category of social rights.

This body of laws expresses the values of equality and solidarity, which are essential to build society, but also are envisioned from the outset as inherent elements in freedom. In the words of the preamble to the United Nations Charter, they seek to “promote social progress and (...) elevate the level of life within a broader concept of freedom.” Moreover, this idea is associated with T. H. Marshall’s concept of social citizenship and, in more recent times, with Amartya Sen’s “development as freedom.” (Marshall and Bottomore, 1992; Sen, 1999).

The extension of these rights must be, of course, consistent with a country’s level of development. In this sense, as I mentioned in a previous essay, “the intention of demanding abstract rights without taking into account what a society can give to all its citizens at a particular time can result in distributing the limited resources to only a few. Thus, even though certain levels of legal demands are inherent in any formulation of rights, in the case of economic and social rights, political demands are equally – or perhaps even more – important: instructions from the political authorities (the Constituent Assembly or the National Congress) on what specifically are the economic and social goals that a society hopes to achieve, within the restrictions imposed by the nation’s level of development, but also under the principle of achieving ‘the maximum within what is feasible.’ ” (Ocampo, 2008; 2010)

The second concept of social policy mentioned above arose as a result of the economic reforms in the 80s and 90s of the past century (in the case of Chile, from the reforms of the second half of the 70s), under heavy influence from the World Bank (and in Chile, from the Chicago School). These reforms appeared as part of the drastic fiscal adjustments adopted by Latin American countries during the debt crisis, and therefore were part of the task of reducing the reach of government intervention. In a positive sense, they sought nevertheless to provide services to the poorest groups, and introduced some mechanisms to support the most vulnerable members of society as they adapted to structural adjustment programs. Among these, the social emergency funds stand out. When the focus on the poor was combined with services provided by private companies, demand-side subsidies were introduced to replace the supply-side subsidies that characterized government service programs. So this focus attempted to make restrictions in government spending compatible with efforts to deliver social services to the poorest sectors of the population. Moreover, they introduced some new instruments, among them systems to identify beneficiaries, and over time measures to evaluate the effectiveness of social policies.

It should be noted that the reforms combined the new instruments with the old social policy schemes. In the case of basic education, in particular, the government continued to be the dominant supplier in the system, while in health, housing and access to public services, demand-related subsidies were generally focused and advanced much more. The result of all this is that today three social policy schemes coexist in the region, sometimes in the same country: programs of a strictly universal stripe run predominantly by the government; strictly focused systems, as was pointed out, and lagging government welfare programs segmented into social security systems.

Perhaps the most interesting cases of focusing conditional subsidies arose in Mexico as a social emergency plan (“Progress,” and later “Opportunities”), and in Brazil, as a complementary measure to universal educational services (“School Allowance” and later “Family Allowance”). The special type of conditionality attached to these programs has, in fact, turned them into instruments that focus on providing universal basic services to the poorest sectors of the population. In many countries, their rapid expansion has moved them closer to what could eventually be a system of basic income or citizen income, which would require the current conditionality to be eliminated.

Contemporary Views on Universal Services and Social Citizenship

The return to the universalist vision to Latin America’s debate over social policy has followed different routes. One of these was the incorporation of social rights into the political constitutions of several countries, among them Brazil (1988), Colombia (1991) and Venezuela (1999). In the institutional field, ECLAC placed the concept of rights in its view of social policy in a document entitled *Equality, Development and Citizenship* (2000), where it defined four basic principles of social policy: universality, solidarity, efficiency and comprehensiveness. The vision of citizenship has also been the central concept in the institution’s recent documents, in particular *The Hour of Equality* (2010). In 2006, the Inter-American Institute for Social Development at the Inter-American Development Bank posed the concept of basic universalism, defined as basic social benefits and coverage for essential risks that should be extended to the entire population, under the principle of citizenship and standards of uniform quality (Molina, 2006). CAF embraced these principles as the pillars of social policy in its document on *Social Policies To Promote Citizenship and Social Cohesion* (2010). At the same time, the UNDP, building a bridge between the different tendencies in the previously mentioned political constitutions, defined democracy as an extension of citizenship in its triple dimension of civil, political and social citizenship, in its 2004 report on democracy in Latin America.

The main problem of the universal visions is that they are more costly in terms of financial resources. As a result, an essential requisite in their implementation is a strengthening of the tax systems and making them more progressive. The advance toward a universal style social policy in this way will not be possible without a new “Social Pact” that increases taxes and makes them more effectively redistributive in the region (CAF, 2012). Over the last two decades, the favorable tendencies in government social spending, in tax receipts as well as the more recent tendency of direct taxation, indicate that it is possible to move in this direction. In any case, if we compare taxation levels in Latin America with those of the OECD countries, the biggest deficit is in direct taxation, especially for individuals, and in payments to social security (UNDP, 2004).

Moreover, it is worth noting that one of the false dilemmas raised by critics of universal services is that these programs assign too many financial resources to the middle class. This is a false dilemma for several reasons. First of all, because the political support for social policies and the levels of taxation necessary to finance them depend critically on the middle class. In a certain sense, one of the advantages of the universalist vision is that it provides a public agenda for the whole of society, and thus also for the middle class. In fact, the advance of social policy in the industrialized countries was achieved historically thanks to the political conquests of the middle income groups. The democratic political processes subsequently extended these to the entire population. The second reason is because, as we will see, the experience of the industrialized nations indicates that the most universal systems are in fact more redistributive than those that place emphasis on focused resources. And finally, social policy’s capacity to attract the middle class can be seen as evidence of, and a guarantee of, a policy that provides high quality and uniform services (Grynspan cited by Molina, 2006). For all these reasons, the idea of some of focalization’s defenders of redistributing public monies assigned to the middle class to the poorest members of society rather tends to reduce support for active social policies.

Moreover, it should be emphasized that one of the biggest risks of focused resources is contributing to an accentuated segmentation in delivering social services, which tends to be characteristic of highly unequal societies, like those in Latin America. Effectively, defining a channel for providing services to the poor tends to deepen segmentation. One of the goals of public policy should be contributing to the reduction of this characteristic in our societies. In fact, one of the great historic aspirations of the liberal vision was to provide universal basic education as an element of equality and, in this sense, social de-segmentation. And this objective was one of the great dreams of the creators of the modern welfare state. The problems presented by focalized subsidies in this context can be reduced, or even eliminated, if they are seen as a tool for achieving universal coverage of

social and public services, and not as an alternative to universalization, as conceived in the market reforms of the 1980s and 1990s.

The Redistributive Effects of Social Spending

There is a wide range of studies on the distributive effects of social policy. These studies allow us to classify the different types of social spending in terms of distributive impacts in three categories: The first includes the most redistributive spending: social assistance programs (including conditioned subsidies) and areas of social policy with universal or quasi-universal coverage, like primary education and basic health services.

The second category includes services with intermediate levels of coverage, such as secondary education, spending on housing and sanitation services, and other health expenses. In these cases, the distributive impact does not move significantly away from equal distribution, and therefore is much better than primary distribution. Nevertheless, even though it generally is not estimated, the marginal expenditure associated with expanding coverage is highly progressive, precisely because it is focused on providing services to poor sectors that lack access to them. This is also reflected by the fact that, for example, as coverage increases, these services become progressive as shown by studies on the distributive impact of the expenditures on secondary education over the long term.

The third category includes cases where the benefits tend to be concentrated in the highest deciles of income distribution: social security (especially pensions) and university education. Even in these cases, though, the distribution is slightly better than that of primary income. Once again, we can say that marginal spending associated with increased coverage is distributed much better. In addition, in the case of contributive services, existing studies do not take into account the fact that much of the benefits have contributions to their financing as a counterpart, which in general has a progressive impact. Thus, if we estimate exclusively the distributive effect of contributions from the government budget to financing of social security, its impact would be much greater and highly progressive, as demonstrated by the calculations of net government subsidies to pensions in the case of Argentina. Nor do current estimates take into account the case of public employees: Part of what is recorded as an expense is employer contributions to social security (that is, they are part of the totality of public sector salaries, and are, in a broad sense, more than social spending as such).

In the terminology of the recent CAF Report on Economics and Development, Public Finances for Development, virtually all social expenditures are progressive: the first of these groups includes expenditures that are totally progressive (the poor are favored proportionally more than the rich); the

second refers to spending with relative progressivity (much better than primary income distribution) and in some cases also totally progressive, and the third includes categories that, with few exceptions, are progressive in relative terms (they are better distributed than income). Moreover, as indicated by the relationship between the second and third groups, increasing coverage generates social expenditures that are highly redistributive on the margin, and it would not be unusual that in some cases these marginal outlays would be redistributive in absolute terms.

One fact worth noting is that, with the exception of social assistance programs, the distributive impact is closely related to program coverage. Studies done by ECLAC and CAF show, moreover, that the redistributive impact depends on the progressivity or regressivity of a program, but also on the volume of resources assigned to provide services under the program (ECLAC, 2007). For this reason, the bulk of the redistributive impact comes from programs in education and health with wide coverage, whose subsidies generally are paid in kind. The total redistributive impact of social policy is, moreover, greater in countries that have achieved wider coverage of basic social services, as is reflected in the correlation between the redistributive effect of social spending (measured by the Gini coefficient) and the UNDP's Index of Human Development, taking into account only education and health components in the index (Ocampo, 2004).

Precisely because they are managing a reduced level of financial resources, social assistance programs are showing relatively modest redistributive effects. Their impact on poverty is greater, as indicated by studies done on conditional transfers. One of the great virtues of the latter has been the tendency to increase coverage, that is to "universalize" their benefits within the target population (those below the poverty line or indigence level). Moreover, as was indicated before, one of the big advantages is that they use transfers as a lever to make the target populations use the social programs in education and health on a universal basis.

For all these reasons, I have reached the conclusion in earlier studies that the best way to focus benefits is a policy of universal access to services and social benefits. In any case, even though under this vision focalization should play a subsidiary role, it accomplishes three important functions: First, it acts as an instrument of poverty relief in societies where this phenomenon is very acute. In this case, a basic principal is universalization in the groups that are subject to the corresponding programs (for example, programs providing nutrition to infants, pensions for poor senior citizens, conditional subsidies for people below the poverty line, etc.). Second is adapting universal programs to the characteristics of specific populations (native people, women who are heads of households, disperse rural populations, etc.). The third function is helping people overcome difficulties in gaining access to universal programs. But in all these cases, focalized services should be seen as a tool of universalization and never as a substitute.

It is interesting to note that these conclusions agree with what Korpi and Palme have called “the redistribution paradox” (Korpi and Palme, 1998). In analyzing social protection systems in the industrialized countries, these authors found that, in effect, the total redistributive effect of government social spending is greater in countries with universal systems, than in countries that use intensely focalized criteria (especially in Anglo-Saxon nations). And this effect is essential to gain political support from the middle class, without which it would not be possible to obtain backing for the high levels of taxation these countries need to finance the necessary government expenses.

Water and Sanitation in the Context of Public Policy

How do you insert a policy for water and sanitation into this framework? The first thing that should be emphasized is the nature of water and sanitation as basic public services. It was not in vain that the United Nations established access to water and sanitation as a human right in 2010. But, as I have already said, this access is linked to other social rights: health and decent housing.

Moreover, water and sanitation clearly embody all the elements of sustainable development, in the sense the United Nations has given to this term. This means development that comprehensively combines the economic, social and environmental dimensions. In the economic arena, it is a productive activity that provides inputs fundamental for other productive activities, notable agriculture. In fact, access to abundant supplies of water is one of the competitive advantages held by many Latin American nations in the global context. In the social sense, as was mentioned before, they are essential for life and for good health and are rights in themselves. And in the environmental sense, proper management and preservation of fresh water sources, as well as sewage treatment, are necessary for sustaining the environment.

The major environmental problems we face, especially climate change, are producing declines in water supply and will become more acute in the future.

From the coverage point of view, development of these services has been uneven in two different senses. On the one hand, drinking water services have been developed much more than sewage systems, and these, in turn, have been developed more than sewage treatment, which is sorely lacking in the region (less than 30% coverage). On the other hand, coverage varies significantly for different social groups. All together, the majority of Latin American nations have water service coverage of 90% or more, but some are in the range of 70-90%. In terms of sanitation services, coverage ranges between 60% and 80%, but in some countries, they reach very low levels, between 10% and 40% (CAF, 2012). In all these cases, the lower levels of coverage have a greater proportional impact on low-income urban sectors

and rural inhabitants, for whom the incidence of poverty is very high. Moreover, these sectors suffer from the poor quality of the services they receive, in terms of water quality, reliability of supply, means of access (in many cases the connections are not working) and the absence of sanitation services in areas where homes are located. Due to the inequality of access, as coverage increases the indicators related to distribution also have improved, sometimes substantially²² (these are estimated by CAF as the relation between access available to the 5th quintile and to the 1st quintile in income distribution). This is, then, one of the clearest cases in which marginal spending to expand coverage is highly redistributive. These problems in many cases are accompanied by other problems in the quality of housing, overcrowding and other sanitary risks associated with informal settlements in urban areas.

CAF estimates that the investment required over the next two decades to achieve universal water service and quasi-universal sanitary service, as well as advancing other aspects of comprehensive water management (protecting water sources, increased sewage treatment, building rainwater drainage systems, etc.) would be equivalent to 0.3% of GDP. This would mean tripling the current level of investment and making significant improvements in management, administrative and operating efficiency throughout the sector. Most of the financing would fall to income from the companies that supply water and sanitation services (62% vs. 35% for government budget outlays and an additional 3% from international donations to high-poverty nations.) The sums that governments must contribute (national, regional or local governments, according to the institutional setting in each country) would thereby be relatively modest to achieve such a high priority goal²³. (CAF, 2011, 2012)

The required subsidies should be of two kinds: government support for investments in the sector that will not be recoverable through rates and subsidies for consumers (and thus for operating expenses) from low-income groups. In both cases, the goal is to equalize not only access to services but also the quality of services that low-income sectors receive.

From the point of view of economic logic, it makes sense to use government outlays to subsidize investments that affect the urban environment (rainwater drainage systems) or the environment in general (protecting water sources and sewage treatment). Part of these investments can be financed, however, with taxes on urban property (taxes on property or property value) and/or a surcharge on water and sanitation services for high-income groups and companies. Investments related to connection costs should also be sub-

22. I continue to employ the terminology of my country, Colombia, where we make a distinction between social services and public services. Basic public services (or household public services) are defined as water and sanitation, electricity, and telecommunications.

23. The corresponding targets are 100% coverage for drinking water in urban areas, 94% coverage for sewers, and 85% of urban areas covered by rainwater drainage systems.

sidized for low-income groups, since these are expensive in relation to their capacity to pay. Meanwhile, current costs of water and sanitation services (including operating costs for sewage treatment) should be fully recovered from middle- and high-income groups as well as from companies. But these costs should be subsidized for low-income consumers. With this in mind, two systems of crossed subsidies could be developed, perhaps following the Colombian model adopted in the 1990s. This model requires that high income groups (identified by the areas where they live) pay a 20% surcharge on public services fees, while low-income groups (identified by the same means) receive a subsidy equal to between 50-60% (originally between 40-50%) of the cost of services²⁴. Even this experience indicates that an important share of water and sanitation services subsidies for low-income groups must be financed by the central government budget or by the budgets of local governments²⁵.

It should be noted that the comprehensive analyses carried out by CAF indicate that this sector needs major institutional reforms in the majority of countries (CAF, 2012). These reforms should include, in the first place, a clear separation between planning and policy definition, and in regulation and supplying these services. The first ones should be carried out by central governments, while supplying the services should be in the hands of regional or local entities.

In second place, the entities that supply services should develop a clear business organization, by using either specialized, government-owned companies, public-private systems (generally private companies using infrastructure that fundamentally remains government-owned, or community or support organizations (which are increasingly seen in rural areas). These business structures are essential to make significant improvements in technical and economic efficiency (water quality, reducing water losses, service continuity, cutting down on non-authorized connections and on unpaid bills). Moreover, service improvements can provide an important share of the required investments. Even though the companies will fundamentally be regional or local, the country as a whole can make contributions to them by investing in the poorest regions, using development banks that provide loans to companies working in water and sanitation and by helping to train the human resources they will need.

Third, it is necessary to produce appropriate flows of information, since this is essential for regulation, supervision, planning for investment and setting efficiency goals.

24. The system divides households into six groups by income. The high-income households in group VI pay the surcharge on public service fees (originally, this surcharge applied to businesses, as well, but it was subsequently removed), while subsidies of 50% and 60% apply to households in the low-income brackets II and I, respectively.

25. The cross subsidies work well in those services for which the income elasticity of demand among the households is elastic, in other words, where the consumption of services in high-income areas is markedly higher than in low-income areas. This is not the case, however, for water and sanitation services, where the disparity of consumption between high-income and low-income households is not that great.

Finally, and no less important, all this requires de-politicizing both regulation and supervision of the companies in the sector, and the process of supplying services. Politics should have a role, fundamentally in designing laws that determine regulatory principles, and in deciding which subsidies should be provided by central, regional or local governments.

Conclusion

This essay argues in favor of basing social policy on the concept of social citizenship and, therefore, recognizing social services and basic public services as citizens' rights. This means, in turn, advancing social policy based on the principles of universality and solidarity, and implies that this policy should develop services and social benefits that can effectively be applied on a universal basis. In this sense, it argues that the best focalized approach is a universal social policy, and that government expenditures aimed at increasing coverage of social and public services are highly redistributive.

In this context, the specific tools used in the focused approach should be seen as mechanisms supporting universalization rather than as a substitute for it. They can, in particular, carry out three basic functions: developing social assistance programs of a universal stripe within their target groups, adapting programs to the specific characteristics of certain social groups and acting as a bridge to universal programs.

Within this conceptual scheme, access to water and sanitation services is a basic public service and a citizen's right, as established by the United Nations. Moreover, these services embody the elements of sustainable development, that is, development that comprehensively unites the economic, social and environmental dimensions.

Given its character as a right, the main responsibility of policy should therefore be to guarantee the universal application of these services. If we take into account the relatively high levels of coverage achieved so far (more coverage in water than in sanitation services and more in urban areas than in rural zones), the costs associated with expanding the coverage and quality of services will be highly redistributive. Investments impacting the environment, as well as those necessary to broaden coverage among low-income sectors, will require government outlays, while the costs of providing services to the lowest-income groups can be subsidized through a mixture of programs using crossed subsidies and government outlays. The sums needed from the government budgets are, moreover, fiscally modest.

Finally, but no less important, this sector needs a true institutional revolution in most of the regional nations. This revolution should include a clear separation of responsibilities in planning and defining policies and in

regulation and supplying services; a business organization in the companies supplying the services; appropriate information services and a clear de-politicization of all the areas mentioned. Legal norms should be the only way in which politics expresses its opinion on the principles for organizing the sector and the assignment of state subsidies.

The Regulatory View: Regulatory services for universal options

Evamaría Uribe

Even though this analysis is based on the experience of Colombia in providing water and sanitation services to the public, it was important to go beyond Colombia's specific legal, regulatory and institutional cases to reach general conclusions applicable to the reality of Latin America.

This essay begins by considering and rapidly reviewing the development of laws related to water and sanitation in international law, where even though access to drinking water and sanitation services is not recognized as a human right in itself, an increasing number of governments recognize this right in their constitutions and in national legislation, and some national courts oblige compliance with this right under judicial review. Taking this international focus as a starting point, the document develops the legal bases for the right to water and sanitation services, as well as the search for the universalization of these services as the means for settling this right in practice. This right is fundamental for guaranteeing continuity in life and health, and is necessary for the development the social and economic rights of nations. To achieve this, not only was it necessary to recognize the constitutional right, but also to effectively implement this right through laws and regulation. This essay analyzes the need to formalize the political will to provide universal water and sanitation services through a specific law which outlines a "Plan for universal

water and sanitation services.” This law, in turn, defines the general outlines, principles and tools which can be used to provide the specific regulatory items needed for regulatory decisions and the concrete aspects of economic regulations needed to serve as a base and to make the plan successful.

Besides this introductory section, this essay has four other sections. The second section develops the legal base for the human right to water, using as a reference the development of this right according to actions taken by the United Nations. The concept of the “vital (or basic) minimum supply of water and sanitation services” is analyzed and a series of characteristics are identified that allow us to define and deduce the extent of the right and its requirements. The third analyzes legal tools for achieving universal water and sanitation services in the constitution, laws and regulations. The fourth summarizes the main ideas and conclusions and suggests some ideas for future analysis and research and for possible work agendas.

The Legal Basis for the Human Right to Water

The Human right to Water and Sanitation According to United Nations Documents

In 1968, the United Nations, meeting at the International Conference on Human Right in Teheran, reviewed the progress made in the twenty years since the Universal Declaration of Human Rights and set up a program for the future. The Proclamation of Teheran declared the indivisibility of human rights and individual liberties and supported the idea that the complete fulfillment of civil and political rights implied the ability to enjoy economic, social and cultural rights. It stated that progress in the application of human rights depends on sound and efficient national and international policies in economic and social development.

In January of 1976, The General Assembly of the United Nations ratified the International Covenant on Economic, Social and Cultural Rights (ICESCR), which established that the United Nations Charter requires signatory states to promote universal and effective respect for human rights and liberties. Among other provisions, it agreed that upon ratifying the covenant, the states recognize the “right of each person to a suitable level of life for him/herself and his/her family, including food, clothing and adequate housing and continuous improvement in the conditions of life.” It also recognized the right of all people to “enjoy the highest level possible of physical and mental health.” The states that ratified the covenant promised to “adopt measures (...) especially economic and technical, using up to the maximum resources available to the government to progressively achieve, by all the appropriate means, including, in particular, the adoption of legislative measures, the full implementation of economic, social

and cultural rights.” The covenant recognizes these rights as developing progressively, and calls for implementing them by adopting the appropriate laws to achieve the full benefit of a level of life that is appropriate for an individual and his/her family. In the development of later documents, the right to water and sanitation services was included.

In 2002, General Observation No. 15 of the Committee on Economic, Social and Cultural Rights amply discussed the legal bases for the right to water contained in Articles 11 and 12 of the covenant. It develops various aspects of great importance for putting into effect and providing norms related to the right to water; describes the basic obligations contracted by states ratifying the covenant; identifies possible legal violations and, using Article 2 as a base, states explicitly that each signatory has the obligation to progressively adopt the necessary measures to ensure implementation of the right to water.

According to the High Commissioner on Human Rights, the General Observation offers just one interpretation by a body of experts on the material contained in several international pacts and agreements, among them the Covenant on Economic, Social and Cultural Rights (General Assembly of the United Nations - UNGA, 2007:7). Also, referring to the legal instruments where references are made to drinking water and sanitation, it states that “even if the treaties on human rights do not recognize access to drinking water and sanitation services as a human right by themselves, the basic treaties on human rights have increasingly recognized, and in more explicit terms, some specific obligations in reference to access to drinking water and sanitation services, mainly as part of the right to an adequate level of life and the right to health (...) There are also obligations linked to access to drinking water and sanitation that are implicit in a series of treaties on human rights, and they are deduced from obligations related to the promotion and protection of other rights” (UNGA, 2007:9). In regard to the meaning and scope of sanitation, the Report of the High Commissioner is clear in recognizing that “the (legal) instruments on human rights do not provide much orientation on the scope and significance of the word ‘sanitation’” and recognizes that the human rights framework continues to be imprecise and general in regard to sanitation, and that in general, it is assimilated with the right to private life, human dignity and protection of public health and the environment (UNGA, 2007:13).

The High Commissioner explicitly states that declarations, resolutions, principles and directives related to human rights do not carry the same binding force as treaties, but that they can contain elements that impose, or may later impose, obligations on governments by virtue of customary international law. The report concludes by affirming that an increasing number of governments are recognizing drinking water as a human right in their constitutions and national legislations, and that some courts are “obliging compliance with this right subject to review” (UNGA 2007: 5, 28).

The U.N General Assembly, in a resolution approved on July 28, 2010, A/RES/64/292, recognized that the right to safe drinking water and sanitation is a “human right essential for the full enjoyment of life and of all human rights” and calls on members of international organizations to provide financial resources and technology to intensify efforts to supply the entire population with access to economical drinking water and sanitation services.

The Legal Definition of the Right to Water and Sanitation

Using as a reference point the definitions in the aforementioned international instruments, we can conclude that the right to water and sanitation is a derived right associated with the right to life (the right to avoid death by dehydration), the right to health (reducing the risk of water-related diseases), the right to human dignity, housing and adequate shelter (the home is where an individual can satisfy the need to cook and eat, and carry out personal and domestic hygiene)²⁶. The right to water and sanitation services is defined as “the right to access, equally and with no discrimination, to a sufficient quantity of drinking water for personal and domestic use, which includes washing clothes²⁷, cooking food and personal and domestic hygiene, to maintain life and health” (UNGA, 2007: ²⁸).

Four factors are necessary for the proper exercise of the right to water: availability, quality, access and the right to demand legal compliance²⁸. These are criteria that give legal content and significant meaning to the goal of achieving universal drinking water and sanitation services. They identify the essential nucleus of the right, which, besides having a universal scope, has boundaries. That is, the right to water and sanitation is a basic right for all human beings by virtue of its connection to the right to life and health, but it does have some defined limits that must be specifically identified to clearly orient the obligations of the government, which is in charge of guaranteeing the effective application of the right to water and sanitation.

The most detailed analysis of these criteria allows us to define the duties of the responsible authorities, among whom are the regulators, the authorities who carry out government policies on the efficient, appropriate and sustainable provision of water and sanitation services. With the goal of identifying how regulators can support government efforts to ensure universal access to water and sanitation, we define the legal, economic and technical content of the four criteria that describe the essential core of the right to water and sanitation services, as follows.

26. International Covenant on Economic, Social and Cultural Rights, Articles 11 and 12, and the Universal Declaration of Human Rights.

27. The reference is to washing clothes at home.

28. General Observation No. 15. U.N. Committee on Economic, Social and Cultural Rights.

The Concept of the “Vital Minimum” Supply

Water and sanitation services are basic rights provided they are used to satisfy personal and domestic use, which include personal hygiene and food preparation both for the individual and for the immediate nuclear family. Other applications of water, for example in agriculture or industry or luxury domestic activities, do not fit the meaning of uses associated with a fundamental right.

The concept of the “vital minimum” supply of water refers to the minimum consumption required to meet the basic food and hygienic needs of the immediate nuclear family. Even after taking into consideration socio-cultural differences and climate-related factors (temperature, altitude, seasonality), the World Health Organization estimates that 50 liters per day (Horward and Bartram, 2003) satisfies the “vital minimum consumption” requirement of one person²⁹.

The right to a vital minimum supply of water is, then, the right of every human being to ensure life, health and acceptable socio-economic conditions given the specific level of economic and social development.

It is, nevertheless, a right with limitations: the water must be used to meet personal and domestic needs of an individual and his/her immediate family nucleus; access must be obtained with no discrimination whatsoever and independent of income level, and should not to be limited by being a member – or not – of the poorest groups in society. The “vital minimum” must be supplied on an uninterrupted basis and is the right of each individual. In this context one can say that the availability and use of the vital minimum supply of water is a basic right for each person.

The hope of achieving universal sanitation services, which should be called “basic sanitation,”³⁰ refers to the disposal of liquid and solid wastes related to personal and domestic necessities associated with personal hygiene and diet for the individual and the immediate nuclear family. As in the case of water, the vital minimum for basic sanitation services is defined by the availability of installations for disposal of liquids (sewers, toilets and the

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29. Bogota (Colombia) adopted a vital minimum consumption level of 50 liters per person per day and Medellin (Colombia) 83 liters per person per day. If you take into account the fact that the average nuclear family in Colombia is made up of four persons, the minimum vital consumption would be six to 10 cubic meters per family per month. Bogota has an average temperature of 15 degrees Celsius and Medellin 22 degrees Celsius, which can partially explain the difference in the volume of the vital minimum. In South Africa, the minimum consumption is calculated at 25 liters per person per day, which would equal six cubic liters per month per family for a nuclear family of eight people. [[Http://ourwatercommons.org/es/water-solutions/](http://ourwatercommons.org/es/water-solutions/)]. Figure noted on October 6, 2012.
30. Basic sanitation includes the disposal of liquid waste (sewage) and solid waste (garbage). Rainwater drainage systems can be associated with sewage service or can be considered an independent system. It is not necessarily considered part of basic sanitation services but in urban settings, it very much complements the sewage systems.

adequate disposal of garbage) associated directly with the individual and the nuclear family. In this context, the disposal of industrial liquids or treatment of industrial solids or sludge is not directly associated with exercising the basic right to sanitation services³¹.

The importance of defining the scope of the concept of the vital minimum supply of water and sanitation services is rooted in the need to delimit the scope of government obligations. The government is responsible, in general, for ensuring the universal availability of and access to water and sanitation services, but this state obligation does not imply that having a vital minimum supply, by itself, will be free of any cost. That is to say, ensuring a vital minimum supply without anyone assuming the costs of this service.

The population can enjoy the right to a vital minimum supply of water and receive the service at no cost because the government, or some benevolent actor with financial resources, decides to cover the costs implied in providing this right and finance some part, or all of, the minimum consumption level. This would be paid for by either government funds or private funds in the case of a benefactor. But even in this eventuality, the availability and access to this service has a cost, and these expenses must be paid by someone, whether it is the government, a benevolent provider, the user who pays water fees, by the company providing the service (whether it be owned by the government or private investors), or by an institution or organization that decides to supply the service at no charge. Even if the service is provided by a community, religious or lay organization or institution or an association of users, there are still costs for giving access to the service, treating the water, moving it to consumers and producing optimal quality water for consumption. All this must be financed in order to supply water to those who cannot pay for it but who, as human beings, have the right to receive it. At a later point, we will more broadly analyze this right from the point of view of economic access.

Recognition of the right by the individual generates, in return, obligations such as ensuring a rational consumption of water, a role in co-managing the conservation of water as a natural resource and the preservation of the sanitary environment.

Quality

The right to water and sanitation services as a right connected to the right to health requires that we identify precise technical conditions to ensure that the services are delivered under healthy conditions and that the appropriate technology is used to handle liquid and solid wastes.

For example, to effectively carry out this right, water quality apt for human

31. The Constitutional Court of Colombia has ruled on this. (Decision T-1104 of 2005).

consumption must fall within strict parameters, with no exceptions or differences in quality ³². Housing in urban communities must be connected to the sewage system and to domestic garbage collection (solid wastes) in keeping with scheduled and pre-established weekly visits. Moreover, in order to promote separation of recyclable materials, we must avoid dumping garbage in bodies of water and burning garbage in residential areas. It is necessary to understand that implementing the right to water and sanitation services also implies achieving the right to decent housing in areas physically and environmentally appropriate for human settlement. Finally, as a requirement for people in general, we must be able to rely on adequate sites and systems for disposing of solid wastes. These must include proven techniques such as sanitary landfills or incineration of dangerous waste products in officially approved sites using international standards.

Nonetheless, exercising the universal right to water and sanitation does not require that water to be used for irrigating gardens, golf courses or crops, or for other applications such as washing cars or material storage, be treated to the high standards applied to drinking water. At the same time, the appropriate sanitation technology must be adjusted to the specific conditions of those who are accessing this right, whether it be large or small urban communities, widely-spaced rural dwellings or small, semi-rural communities.

Access

Access to services without discrimination guarantees universal access. Thus water, and installations and services related to water and sanitation, should be accessible to everyone, with no discrimination and meeting the following conditions:

Physical Access to Water

The right to universal access is achieved in a determined geographical area. The installations and services related to water and sanitation services must be located within the physical reach of the individual and the population, reflecting the importance of this attribute when we try to establish the obligations and actions that need to be taken in guaranteeing access rights to individuals, families and the population in general. Physical access to water should not mean that a person or family need to travel more than 100 meters or spend more than 30 minutes to get supplied (Horward and Bartram, 2003). As a result, the definition and design of water access systems and technology should take into account the location of the population with respect to water sources and to disposal sites for liquid wastes (sewers) and solid waste (garbage collection).

32. "The World Health Organization's guidelines for the quality of drinking water provide specific values for several indicators related to microbiological contamination and dangerous chemicals, but allow for countries to adapt the reference values to their own socio-economic contexts." *Progress in Water and Sanitation*, WHO, 2010.

The need to guarantee physical access is as a fundamental criterion in establishing policies and defining supply systems, technology and services to ensure access to water and sanitation services for the disperse rural population, for small groups of the semi-urban population and for those in the low-income population, including displaced, unemployed or marginalized individuals who generally are located on the periphery of cities.

Economic Accessibility

Because of the importance of water for life and its role as a renewable natural resource, governments have declared water to be an inalienable, non-expiring public good not subject to embargo. All of the following are considered part of the public domain: natural channels and riverbeds; the river and lake beds of all natural water deposits; sea, river and lake shores and beaches; strata and deposits of subterranean water; a strip of land parallel³³ to the high tide line or to the permanent channels and flow of rivers and lakes, and the areas occupied by snow and natural flow routes of glaciers³⁴.

Every individual has the right to use water in the public domain to satisfy their basic needs, those of their families and their animals, as long as their use does not harm third parties³⁵. Water must be used without making any new branches, without using machinery, without stopping or altering the course of water, without damaging the flow or the banks of currents and without altering or polluting water so that it cannot be used by others. Access to and enjoyment of water should be free of charge, and an individual should be able to extend a hand and obtain the water necessary for minimum subsistence without any additional effort.

The state's role is to regulate the commercial exploitation, use and conservation as a renewable natural resource when it is required to guarantee access to the country's entire population in order to meet the basic needs of individuals and their families. In doing so, the government will probably have to make changes, using equipment to pump water, building pipelines or changing the course of waterways. Eventually third parties will also seek access to water for economic applications and other uses. In its exclusive role of controlling water, the government is responsible for regulating human behavior – individual and collective – through public administration, state governance or private use of the resource. Government action should guarantee the measures necessary for the conservation and rational use of the resource, its permanent availability, maximum social

33. In Colombia, the border measures 30 meters from the line.

34. Colombia's Decree Law No. 2811 of 1974. The National Code on Renewable Natural Resources and Environmental Protection (CRN). Article 83. Spanish Constitution Article 132.1

35. CRN Article 86.

participation in benefit of all present and future inhabitants in the national territory and the prevention and control of indiscriminate exploitation of the resource.

The government regulates access to water using the legal form of the concession. Access to water under a concession allows for temporary use. The water concession contract ³⁶ is an onerous contract, with a time limit, that is signed between the government, represented by a competent public authority, and any parties that exploit water or facilitate its use through their economic activity ³⁷. Under circumstances where water is supplied to the public, either by state-owned enterprises or private companies, water use concessions are required to obtain access and use of the resource. To provide sanitation services, licenses or permits are required for dumping, which implies payment of compensation fees for dumping or pollution.

A concession for water use occasionally will depend on the availability of the resource and its planned use. It is possible that the government will, by concession, take away the use of water from some to direct it to benefit others with a higher priority ³⁸. Governments generally assign priority to water and sanitation services used for the public, which prevails over other uses since public use is tied to fundamental human rights. In the case of sanitation services, the government may also establish precise conditions and technical requirements for quality in awarding licenses for dumping.

By regulating access to water and establishing priorities and conditions for its use via concessions (which have time limits), the government transforms water, which continues to be a public good into an economic good or property. “Access to water” is an economic good while “water” is a public good.

Once water enters by means of intakes, canals, and treatment plants and is distributed for human use and other applications, it stops being a free good that is unlimited and gratis, that has no competition or exclusion and that is available in sufficiently large quantities. The need to guarantee access to everyone for diverse uses means that the obligations associated with sanitation must be limited and onerous. We are speaking, then, of water as an economic good.

It is also the government’s responsibility to prevent or minimize any impact on bodies of water and other natural resources by issuing licenses for dumping of liquid waste (sewage) or environmental permits (for disposal of solid waste). The right to dispose of waste (which is also a sanitary obligation) is also an economic good, whose nature is onerous, marked by competition and exclusion. Dumping of waste and water pollution caused by some can exclude water consumption by many.

36. CRN, Article 88. “Except for special cases, water can only be used under concession.”

37. Colombia, Law 142 of 1994, Articles 25 and 39.1

38. The Natural Resources Code (Colombia) states: “the concession to exploit water will be subject to the availability of the resource and the needs imposed by its intended use.”

As a result, as an economic good, water that is gathered and distributed as a public service and the service associated with basic sanitation, make use of economic goods that are scarce, onerous and have the properties of exclusion and competition, that are typical of private goods.

The ambition of achieving universalization implies that, given the income levels of the population receiving this benefit, access to water and sanitation services requires assuming direct and indirect costs over the short, medium and long term with the goal of supplying universal access to the people. That is to say, this process requires investments and expenses to obtain water, treat it so that it meets quality standards, transport and distribute it and connect the water supply system to housing, as well as covering sewage systems and waste treatment, plus capital recovery.

These are investments that should be recovered to guarantee the sustainability of universal access to water and the services associated with aqueducts and sewage systems which, as we have said before, are of an onerous nature. And as such, the government may decide to provide these services directly through public agencies or state-owned companies, or may decide to supply water to low-income homes at no charge, or even to the entire population. Someone or something has to finance these services, whether it be through taxes on everyone, rates, fees or taxes paid by upper income groups using the services. Alternatively, these services can be financed by the surpluses or profits realized by the government- or privately-owned companies providing them. The economic nature of the good does not change if it is supplied by the government or a private party.

Some people claim that the vital minimum supply should have no cost for those in the poorest economic groups³⁹. That the government may provide water at no charge does not mean that there was no cost to the national treasury or to those who contributed by paying taxes or for those who provide the services. To guarantee universal economic accessibility the government – meaning the national government as well as other state authorities – must grant subsidies from general taxes or some crossed fiscal contributions that

39. According to the Bogota Mayor's Office, "beginning on Thursday, February 23, 2013, when the first billing cycle begins at the Bogota Water and Sewage Company, the vital minimum consumption level will take effect for income levels 1 and 2, which will receive 6 cubic meters of water per month free of charge, as Mayor Gustavo Petro Urrego announced in his inaugural speech." Bogota Mayor's Office (<http://www.bogota.gov.co/secretariageneral/bogotahumana/news1.html>). February 2011. As of that date, an agreement already existed in keeping with Law 142 of 1994, which granted a subsidy of 70% and 50% of the average basic consumption of 20 cubic meters per month for income levels 1 and 2, respectively. The program costs the District USD 40,000 per year and will be financed from the budget of the Mayor's Office Housing Secretariat, without specifying the source of these funds. The proposal does not define who will receive the vital minimum and in its present form, the scheme violates Law 142/94, Article 96.6, since low-income users signed an agreement in which they assumed the obligation of paying for the service. Moreover, under the law it is forbidden for the government to subsidize the cost of service. Recently, the Bogota Aqueduct began a program of restricting water supplies to people in groups who had not paid their bills. The volume of delinquent payments increased for those covered by the program, since apparently many of them did not pay for consumption beyond the vital minimum.

come from the wealthiest sectors of the population (crossed subsidies). It must also clearly establish that financing costs should not be assumed by the companies supplying the service, since it is the obligation of the government to ensure universal supply.

The subsidies should focus on which sector of the population is benefiting, since it is not clear that low- and middle-income users (income level 3) don't have enough income to pay for these services. The volume of water covered by the subsidy should be defined and users should be charged for any amount over the minimum consumption level at current rates. Nonetheless, the debate over providing free service with no other user responsibility continues. The issue of free service is not relevant if people have the resources to pay for it ⁴⁰. The relevant factor is that service cannot be interrupted or shut off under any circumstances, which creates incentives in detriment to service sustainability. In fact, this situation encourages abuses since water is supplied permanently at no cost, and can be used indiscriminately with no obligation to the user.

Finally, it is worth assessing how to deal with user behavior and find out what incentives those who receive the vital minimum supply respond to. For example, does supplying the vital minimum on an uninterrupted basis at no cost increase average consumption among these users, or does paying water used above the vital minimum have an effect or does making illegal connections provide an incentive to fraud, etc.? As for fiscal resources, these should be monitored and watched over to ensure that they are really benefiting the people who are the object of government protection. They should be provided on a temporary basis, and those who receive these benefits should be obliged to save and contribute to water conservation.

Access without Discrimination

Water, as well as the services and installations related to water and sanitation services, must be accessible to everyone in fact and law, especially the most vulnerable sectors of society. The report of the High Commissioner of the United Nations for Human Rights states that “in keeping with the principles of equality and non-discrimination, no population group should be excluded and, when assigning limited government funds, priority should be given to those who completely lack access to drinking water and sanitation services, or to those who have been subjects of discrimination in obtaining access.”

It is necessary, then, to establish priorities with respect to those who should benefit from the uninterrupted vital minimum supply of water. In this way, the international instruments that protect rights in general, and the right to water and sanitation services in particular, identify groups in the population

40. It should be noted that Colombian law bans subsidies on costs of operation, administration and maintenance of water facilities. Law 142 of 1994. Article 96.6. As a result, in Colombia, payment must be made for part of water consumption, approximately 15-20% of the total cost.

that are particularly vulnerable, giving special priority to guaranteeing the vital minimum supply. These groups include poor women who are heads of families and who have children and are unemployed; children, indigenous minorities and others including those with deficient employment, very low income, lack of access to services and refugees, exiles, displaced persons, migrants, those serving time in prison and those detained for trial (UNGA, 2007:15).

When assigning subsidies, one of the government's instruments for achieving universal access, priority must be given to these discriminated, marginal or poor groups.

Access to the vital minimum supply must be provided under non-discriminatory and neutral conditions that ensure quality and sustainability to support the common good of the population.

But in return, the beneficiaries also acquire obligations including using water rationally, responsibly paying for any use of water that exceeds the vital minimum supply, avoiding fraud and actually belonging to a group that is entitled to subsidies. Moreover, these subsidies should be temporary so as not to encourage their perpetual use and to give people opportunities to find employment and social inclusion. The latter is the task of government but not of companies providing the service, even if they are government owned.

Legal Access to the Right to Water and Basic Sanitation

Individuals or communities who are denied the right to water and sanitation services should have expeditious legal recourse available at a reasonable cost to demand from the government or other competent public authorities compliance with their obligations to vulnerable groups in society.

One of the advantages of the constitutional recognition of rights, both the fundamental individual rights as well as social, economic and cultural rights and collective environmental rights, is that the same constitutions have instruments for demanding their immediate application.

Legal options such as "Protective Action" ("Acción de Tutela") or "Right to Protection" ("Derecho de Amparo")⁴¹ give each person the right to seek expedited protection, before the court, of an individual right, by means of a preferential summary judgment, whenever this right may be violated or threatened by an action or omission of any public authority, which includes the authorities who regulate the service.

41. **Protective Action ("Acción de Tutela"):** Protective Action ("Acción de Tutela"): Political Constitution of Colombia, Article 86. Every individual will have the right to protective action, to demand before judges at any time and place by means of a preferential and summary proceeding, acting by himself/herself or through someone acting in his/her name, immediate protection for his/her constitutional rights whenever these are violated or threatened by an action or omission of any public authority.
"Protective Judgment" ("Derecho de Amparo"): Articles 103 and 07 of the Federal Constitution and Law of Protection. The purpose of this action is to make real, effective and practical the rights established in the Constitution, for those seeking protection from the actions of all authorities without distinction to rank, including the highest levels, when these guarantees are violated.

The so-called “Popular Action” groups or “Group Actions,” linked to Anglo-Saxon Common Law, also have recourse to constitutional law in some Latin American countries with a Roman-German civil law tradition. They allow for the protection of collective rights in areas such as public health and the environment, or in seeking financial compensation in cases of violation of individual or collective rights established in the constitution ⁴².

Moreover, in constitutional governments, it is common to accept that international agreements on human rights ratified by congress take prevalence over internal laws, and that rights and duties established in the constitution be interpreted in keeping with the international agreements on human rights ratified by the country ⁴³.

Nevertheless, problems do appear that should be recognized. Protective action judges often cannot handle the technical or financial complexities associated with providing public services. The judges may not be fully informed or there may be incomplete information regarding the obstacles and difficulties involved in providing these services under the conditions demanded by the affected party. Also, the judges’ decisions sometimes require immediate compliance regardless of the costs involved or the technical possibilities needed to comply with a ruling. Sometimes they create situations that can benefit one individual in particular but may at the same time harm the interests of the community as a whole.

It should be pointed out, then, that it is the government, both at the level of national authority and at lower levels, that must ultimately guarantee the universal right to water and sanitation services. And in this role, the government is obliged to create the legal, regulatory and financial instruments to ensure universal access, either directly or through companies that supply the service, and to provide support with financial resources, subsidies and any other measures necessary to attain this goal.

Carrying Out the Right to Universal Water and Basic Sanitation Services: The role of law and economic regulation

The constitutional precision that defines the limits of the essential nucleus of the rights to water and basic sanitation, based on the criteria of availability, quality, access and the power to demand compliance, must in turn be reflected in the laws and regulatory norms that actually put into effect universal drinking water and sanitation services.

42. This is the case of the Constitution of Colombia, Articles 83, 85, 86, 88 of Title II: Regarding rights, guarantees and duties.

43. This is the case of the Colombian constitutional regimen. Article 93, title II: Regarding rights, guarantees and duties.

The constitutional nature of the right to water and basic sanitation services, as a human right and not only as an economic or social right, is insufficient in its application and instrumentalization if legal mechanisms are not approved that reflect both the will of the constitution and the government's political will to achieve universal access to water and sanitation services

Designing Policy, Regulation, Supervision and Control. The Colombian Model:

- **The Ministry of Housing, Cities and National Territory** formulates, adopts, directs, coordinates and carries out public policy, plans and projects covering territorial and urban development; the conditions for access to housing and finance and the delivery of drinking water and basic sanitation services as public services. It unites housing and housing finance policies with those of drinking water and sanitation services and, at the same time, reconciles them with policies related to the environment, infrastructure, transportation, health and rural development. It monitors the resources of the General System of Participations (SGP) for drinking water and sanitation services and coordinates with the Superintendency of Domestic Public Services in certifying districts and municipalities. It defines plans for financing subsidies for domestic aqueduct, sewage and garbage collection services and designs and promotes special programs for supplying drinking water and sanitation services for the rural sector, in coordination with other national and territorial government agencies.
- **The Commission for Regulation of Drinking Water and Basic Sanitation (CRA)** covering water, sewage, garbage collection and disposal of solid wastes – is a group headed by the Minister of Housing, Cities and National Territory or a representative. Other members are four independent commissioners who are experts in the sector; a representative of the Minister of Health and Social Protection and a representative of the National Planning Department. This body is in charge of regulating the sector and rates, as well as enforcing standards to protect competition and prevent users from suffering abuses. It establishes the criteria for efficiency and develops indicators and models for evaluating the financial, technical and administrative performance of the service providers. Even though it has not done so in practice, it has the power to order mergers between service providers in order to extend coverage and lower costs for consumers. It can also liquidate monopolistic government-owned companies in the public service sector and authorize third parties to take over their responsibilities. It is financed by an obligatory payment from service providers that cannot be more than one percent (1%) of their operating expenses.

- **The Superintendency of Domestic Public Services (SSPD)** operates under the direction of the Superintendency of Public Services, as do the electric and gas companies. It is in charge of supervising and controlling the companies that supply drinking water and sanitation services and ensures that they comply with all regulations, and can apply sanctions for non-compliance. It takes control of public service companies that cannot provide adequate service due to business or financial problems. It evaluates the companies' financial, technical and administrative performance in keeping with the indicators developed by the Regulating Commission and reports to regulators and ministries on any public service measures that are being studied. It penalizes companies that do not duly and properly respond to user complaints, and resolves appeals and complaints. It oversees and controls the contracts between the service companies and the public to ensure compliance, and supports the related work of "municipal committees for development and social control of the domestic public service companies." It also manages the Unitary Public Service Information System (SUI), establishes uniform systems for accounting and reporting information at service companies and maintains an up-to-date register of the companies that provide public services. It is financed by an obligatory payment from the service providers that cannot exceed one percent (1%) of their operating expenses.
- **Effectiveness of the Model and Remaining Challenges.** The institutional tripod – policy design based in the ministry, regulation in the hands of the CRA and supervision and control at the SSPD – has proved effective for putting into effect a scheme for managing and regulating a very complex service model, since the sector is highly decentralized, dispersed and heterogeneous. Colombia has 1,102 municipalities, and 70% have less than 25,000 inhabitants. There are around 11,000 service companies, of which 6,453 are registered with the SSPD. In 2011, 203 municipalities had 131 service providers (mixed capital and private capital) in capital cities and mid-sized municipalities with more than 8,000 users. In the three principal cities – Bogota, Medellin and Cali – services are provided by government-owned municipal companies. In rural areas, there are about 600 small municipal companies, many of them organized as cooperative public associations (APC) or user associations.
- Separating the regulatory and control functions provides, in the case of Colombia, some important advantages. The SSPD has gained considerable experience working with the municipalities and with those receiving service and has served as an efficient instrument in watching over the service providers and demanding compliance with legal norms. Its ability to take over service companies in crisis was an important factor in ensuring service to the population.

- The CRA and the SSPD need to be strengthened in both technical and institutional terms. Regulation requires long periods of time and its procedures are slow. It is necessary to strengthen both institutions professionally and technically to protect them from being taken over by special interest groups.

The Law as an Instrument for Achieving Universal Water and Sanitation Services

The universal application of water and sanitation services requires carrying out constitutional mandates. To effectively reach this goal, countries should issue specific laws that clearly and precisely express the government's political will to achieve comprehensive, universal water and sanitary service. These laws should also identify the areas of competence and obligations of different government authorities at different levels, including the obligations and responsibilities of agencies that are in charge of economic regulation.

In this respect, Brazil stands out for the formulation of its Law 11,445 of 2007 (Framework Law on Basic Sanitation), which explicitly states the government's political will on federal sanitation policy and defines the role of national agencies under a comprehensive approach to supply water, dispose of liquid and solid wastes, set up garbage collection and develop rainwater drainage systems.

Developing a specific law that designs a "Plan for Universal Water and Sanitation Services for the Public" is necessary to translate the political will to achieve these goals and obligations into specific legal mandates and implement universal water and sanitation services. The plan, as part of a law approved for this single goal, should explicitly define the scope of obligations for each administrative body involved, using as a reference the powers defined in the constitution and based on the mandate that corresponds to each authority at the national level and below. And what is most important, it should precisely indicate what will happen to a government authority if it does not comply with duties assigned by law and by the constitution related to the universalization of services. "In the case of Brazil, a lack of compliance in this area, generally associated with environmental goals, could generate a lien on municipal income, especially on financial transfers from the federal government. These are the resources used to finance the plan⁴⁴."

Measures to sanction non-compliant public officials are commonly found in the constitution and other laws, whether it be an ordinary official, a mayor, a state governor, or even a minister, who could be removed following a censure vote in congress. Nevertheless, in many cases, sanctions

44. Personal communication with Abel Mejia.

against public officials arrive very late, while legal formalities are being followed and due process is followed.

Experience shows that the tools used to demand compliance from local authorities with respect to developing universal service in water and sanitation often are not reliable. Local authorities enjoy autonomy that is established in the constitution and generally there are no effective sanctions or requirements that can affect the capacity of officials to execute programs or re-direct federal government funds in case of non-compliance with the universalization of services. On the contrary, these officials tend to shift their responsibility to the service operators and, in cases where the service company is private, completely avoid their constitutional and legal responsibilities.

Because of the importance of speeding up access to social interest and priority interest housing, Colombia approved Law 1537 of 2012, which covers policies related to urban development, financing and the access of low-income families to social interest housing and priority housing. These projects, which assist poor families, also benefit these recipients since they include installing and providing access to water and sanitation services. The law gave priority status to financial resources for subsidizing drinking water and sanitation services in municipalities working with the federal government to jointly develop macro-projects in housing. It also established the National Solidarity Fund for Drinking Water and Basic Sanitation Services to promote sustainability in drinking water and basic sanitation services. The law, subject to the National Budget Organic Statute, eliminates the fee charged to low-income groups (Levels 1, 2 and 3) for water use, and creates a series of obligations for water companies and for the relevant authorities aimed at ensuring the expansion of water and sanitation services to meet the needs of these macro-projects ⁴⁵.

Colombia also issued Law 1176 of 2007, which established a system for certifying municipalities. Under this certification, municipalities must comply with a series of conditions established in the law and related to providing water and sanitation services to the public. Municipalities not certified by the Superintendency of Public Services cannot administer funds for drinking water and basic sanitation services provided by the General System of Participations (SGP) ⁴⁶, nor can they enter into any new obligations related to these funds as of the date of de-certification. In this event, the funds will be administered by the respective department (state government), which assumes the responsibility for providing drinking water and basic sanitation services to the public in urban and rural areas. Almost all

45. Colombia, Law 1537 of 2012, Articles 52, 53, 54, 55, 56, 57, 58 and 59.

46. The General System of Participations (SGP) is a fund used to transfer central government funds to departments (states) and municipalities.

the municipalities passed the certification exam, so the requirements were not sufficiently demanding.

In summary, one factor that could promote compliance by national authorities and other agencies that fail to comply or are deliberately reticent to advance the massive water and sanitation services plan, would be to find a legal way to strip the uncooperative official of responsibilities assigned by law and transfer them to another official at a higher level of authority. Formulas could also be found to provide incentives to cooperate, either voluntarily, or as in the case with Brazil's Law 11,445 of 2007, through an administrative sanction for non-compliance or ineffectiveness in advancing the universal application of services. This would happen after an expedited due process and summary judgment.

These laws could specifically assign the public funds necessary for achieving universal service ⁴⁷ and point out the means for reaching this goal. In keeping with each country's individual situation, laws are the appropriate means for defining the obligations, duties and available resources; determining those responsible for carrying out the programs; define the legal, technical, financial, administrative and business means to realize the universal service mandate, and set up procedures for sanctioning those who do not comply.

In the same manner, a law should expressly establish how the universal service obligation would fit in with the legal, business and regulatory regimen in effect for water and sanitation services, a legal framework that is already in place in all Latin American countries. Concretely, it should define the regulator's obligations, tools and functions as well as its institutional structure. The goal is to ensure that regulators have the powers to regulate, facilitate or demand action and levy sanctions using the means provided by law. Only by using a previously established legal mandate can the regulatory and control authorities oblige the regulated companies to follow their rules and instruction and effectively exercise supervision and control or issue sanctions. The regulators should be able to exercise their powers of regulation, supervision and sanction over government authorities who directly manage water and sanitary

services, or who have a relation with providing universal services. Also, from the regulatory point of view, supervision and control should equally apply to companies supplying these services whether they are state owned or owned by private investors.

Moreover, it is the law that establishes the scope of the regulating body and its relationship with the functions and obligations of other administrative authorities, especially those that operate below the national level. The

47. Millennium Goals or PDSEC goals, or any other international reference.

latter organizations are the ones that usually are in charge of guaranteeing the conditions for universal water and sanitation services, either directly or through service companies. This is true except for Chile, which centralizes the water and sanitary authorities at the national level. The participation of municipalities is not relevant in Chile in supplying water and sanitation services.

Regulation as a Tool for Implementing Universal Water and Sanitation Services

As for public services, especially water and sanitation, a constitutional framework should exist which clearly establishes the obligation to supply these service to the entire population ⁴⁸. By means of a constitutional mandate, public water and sanitation services can acquire the connotation of “public services inherent in the social objective of the government,” which carries the responsibility of delivering these services to all of a country’s citizens under the following conditions: quality, continuity, efficiency, solidarity and economic and social sustainability (the principle of universality).

A plan for universal water and sanitation services could be established in a special law, but this would require that a definition of how a general regulatory framework for water and sanitation services would work in harmony with a constitutional mandate, as described earlier. Also, it would be necessary to establish, by legal mandate, precise legal tools, procedures and instructions so that, by means of regulatory measures the social principles are fully realized, without any loss to the sustainability and continuity of the services. Social and economic regulation is one more mechanism of government intervention that can be effective in formalizing a constitutional mandate that makes efficient water and sanitation services to the entire population an imperative of social law.

The regulator, by virtue of legal and constitutional mandates, can thus carry out its duties with greater efficiency, aligning them with the higher interests of the state and working to attain universal services. For example, the rate system that allows cost recovery for water and sanitation services should work in harmony with the social goals of solidarity and redistribution of income. The law should clearly establish the tools that would make this constitutional mandate for solidarity viable ⁴⁹.

48. “Public services are inherent in the social objective of the government. It is the duty of the government to ensure that they are delivered efficiently to all inhabitants of the national territory (...) In any case, the government will maintain regulation, control and supervision of these services.” Article 365, Chapter 5. “Regarding the social goal of the State and public services,” Political Constitution of Colombia.

49. “The law will determine areas of competence and responsibilities related to providing domestic public services, their coverage, financing and the rate structure, which will take into account not only the cost criteria, but also the costs of solidarity and redistribution of income.” Article 367, Chapter 5. “Regarding the social goal of the State and public services,” Political Constitution of Colombia.

As a result, regulation of public services as a tool of state intervention must also work in favor of improving the quality of life for the people and providing access to water and sanitation services to low-income groups. There is a link between the services of water and sanitation to fundamental rights to life and health, as well as to other economic and social rights, such as the right to a socially desirable level of life. All this requires that the regulator achieve the necessary balance between the meritorious goals of the real or potential service consumer and the need to guarantee the economic and social sustainability of the services over the short, medium and long term, to fully ensure in practice the principle of universality.

In the following pages, we analyze some important regulatory aspects that are necessary to implement the universalization policy. Included is a special section illustrating the Colombian scheme for designing policies, regulation, supervision and control.

Subsidies to Support Universal Service

The public service must be sustainable over time and must be characterized by continuity and quality and supplied at reasonable costs based on efficiency, financial strength and solidarity. Extension of coverage, which is done not only to benefit all current users but also to comply with the goal of universalization, implies the need to expand cost structures that reflect the investments needed to build the service infrastructure and ensure that these services effectively reach the entire population now, and in the future.

The companies that provide water and sanitation services have to assume the administrative, operating, maintenance and investment costs in order to guarantee efficient operations and, as was mentioned, current and future expansion. Cost recovery should be carried out in reasonable periods of time and under conditions of economic and social sustainability, anticipating the goal of universal supply.

The rate structure, then, must allow for the expansion of service with the goal of reaching the entire population without any form of discrimination, and including service to future citizens.

In general, the laws that define regulatory frameworks and guide the actions of authorities in charge of economic regulation contain a series of principles the regulator should take into account when setting rates for water and sanitation services. For example, the laws can demand that rates are the product of efficient service, financial strength, solidarity, redistribution, neutrality and transparency.

These principles allow regulators to overcome problems when they are designing an appropriate rate structure that ensures the recovery of costs for administration, operations and maintenance over the short term, and for the expansion of water and sanitation services without compromising the principles of universal access for the entire population, solidarity and equality in

terms of access for the poorest and most vulnerable population groups. The solution to this dilemma requires a legal mandate that, while interpreting the constitutional mandate establishing the right of all to access these services, defines by law the solidarity and subsidy mechanisms that permit the poor and vulnerable members of the population to effectively gain access to these services, or set up conditions to pay for these services with rates that include subsidies focused on the poorest users.

In certain circumstances, the principles of equality and universality can contradict the principles of financial strength and efficiency, creating problems for the regulator in determining which of these principles has primacy. Ensuring financial strength while providing efficient service may imply rate levels that are not acceptable under the norms and principles of universality and equality. In addition, the notion of “equality” can be invoked in general to promote a vision of “aid” that is badly focused in attempting to deal with the problem of poverty ⁵⁰.

The decision cannot be left to the good judgment of the regulator. To guide the regulator’s actions, it is necessary to have legal texts that clearly define the hierarchy of criteria and provide the legal, regulatory and financial tools that can put them into effect. The principles of universality and equality should be guaranteed for users who meet very precise criteria related to their difficult socio-economic status, as well as for those who temporarily cannot pay, even though they are not poor. The principles of efficiency and financial strength are indispensable for preserving the long-term sustainability of the services and converting the idea of universality into reality.

To clarify, it should be noted that any individual or legal entity that supplies water and sanitation services to the public and ensures continuity of service, quality and economic and social sustainability over time, must incur these costs, regardless of whether it is a state- or privately- owned institution, a community organization such as cooperatives, user associations or other modality, or a state- or privately-owned company. Making water and sanitation services available to the current and future population, and ensuring that the service is available less than 100 meters from the home or less than 30 minutes from where it will be used, means that the investment and expansion costs mentioned above must be assumed, along with the normal operating and administrative costs.

The task of the regulator includes doing the technical work of calculating the costs described above and verifying that they are the product of efficient operations. That is to say, the regulator must avoid allowing costs related to management inefficiency, overpriced products related to erroneous investment decisions or excessively costly and inappropriate technology to be transferred to rates.

50. This is case of indiscriminate subsidies that are badly designed and not focused, etc.

But the regulator's work does not end here. Efficiency and financial strength are not necessarily incompatible with solidarity and redistribution.

“The criterion of efficiency means that public services must be produced in the most economical way possible under adequate quality standards. Financial strength seeks a rate formula that produces the necessary outlays to supply the service (including costs, expenses, return on capital) according to the needs of the population served, and according to the goals and parameters established in the Constitution and the law. For its part, solidarity has to do with the way in which the cost of providing public services should be shared among different members of society, so that everyone has access to the services and so that this access does not depend exclusively on the ability to pay. It should also respond to the principal of need, under which people who lack the resources to pay for basic water consumption will benefit from measures that allow them access”⁵¹

With the obligation of providing universal water and sanitation services to all citizens, including to those living under very difficult human and socio-economic conditions, it is to be expected that a major share of related costs will not be recovered unless, using the law, mechanisms for cost recovery are established. Alternatively, direct subsidy plans can be developed that would permit all users to pay for the services at a cost that is economically efficient and financially sustainable.

There are several plans for channeling this type of subsidies to the poorest groups, giving them economic access to water and sanitation services.

For example, in Colombia the regulator calculates the efficient economic costs and sustainable financing needs for providing water and sanitation services using rate methodology developed by the Commission on Regulation (CRA). Law 142 of 1994 authorized a formula for sharing costs among different users, with the goal of setting differential rates among different population groups. According to this cost-sharing plan, higher income users pay rates with a surcharge, called the “solidarity contribution,”⁵² with the goal of paying for the subsidies of the poorest groups. The latter pay for service at rates that do not cover costs, but they receive a subsidy that allows the service provider to cover the costs of service. The companies administer the system of subsidies and contributions and transfer any surplus to the Solidarity and Redistribution of Income Funds (FSRI) that are run by the municipalities. The federal government, by means of direct financial transfers from the General System of Participations (SGP), also finances the subsidies. The contributions and subsidies are considered fiscal resources and do not form part of the normal income of the service companies. It should

51. Colombia, Constitutional Court, Sentence C-151 of 2003, Page 144.

52. This surcharge is a fiscal contribution that can be 20% or more, and is calculated as a percentage above the cost of service.

be noted that, in Colombia, the costs of operation, administration and maintenance cannot legally be financed by subsidies and must be covered by users⁵³. Subsidies can be used to finance the costs of expansion and adding connections. The service providers can finance meters and connections over the long term.

An alternative plan is to set a single rate for all those using the service. This rate would allow for recovery of the efficient economic costs and sustainable financing for providing the service. The very poor pay for service at the established rate but receive direct financial aid. This scheme is used in Chile. The government directly transfers funds administered by the municipalities to cover subsidies on consumption for drinking water and sewage services for users living in poverty. The government finances part of “a maximum consumption of 15 cubic meters of drinking water and sewage service, which is discounted from the bill the beneficiary receives. The user then pays the difference.” Law 19,949 of 2004 set up a social protection system for families living in extreme poverty. Called “Chile Solidarity,” it supplied additional subsidies based on consumption of drinking water and sewage services that covered 100% of the cost of the first 15 cubic meters consumed⁵⁴.

Problems Detected

- Delays in processing budget funds at the national government level and at lower levels.
- Government officials at the regional, state and local levels do not transfer funds even though they are legally authorized to do so.
- Funds transferred by the central government are classified in global sums and by sectors. Local city councils and mayors’ offices have the power to precisely allocate these monies. The local authorities prefer to assign the money to subsidies or to other complementary programs in the same sector, which is permitted under the law.

Possible Solutions

- There should be legal clarity to orient regulators and to advise local officials as to the priorities and norms whenever their actions compromise the financial viability and sustainability of the services. It is necessary to ensure that these services are universal and that they conform to the principle of solidarity.

53. Article 96.6, Law 142 of 1994.

54. The subsidy has a 3-year time limit and can be renewed for the same amount of time if conditions established in the law are met. Renewal is not automatic. If the original period has not expired, the individual must reapply for the subsidy with the city government. See Subsidy Law No. 18,778 and regulations, Supreme Decree No. 195 of 1998 issued by the Ministry of Finance in Chile.

- The availability of subsidies from the government should allow a balance to be struck between solidarity and universality in the provision of services and the principles of efficiency and financial sustainability.
- The service provider should be able to legally demand approved subsidies.
- The official in charge of processing budget allocations and disbursing the money should be obliged by law to pay the service provider at the proper time.
- The regulator, as the official in charge of supervision and control of the services, should be empowered by law to sanction any authority that does not comply with the administrative duties related to paying out subsidy funds.

Late Payments and Cutting Off Service

Cutting and suspending service for non-payment is an important factor to consider since it is fundamental to guaranteeing the availability and physical and economic access to the services, and to the “vital minimum” supply.

Even with subsidized rates, late payments occur and this leads to suspending service. Of course, this has an impact on the principle of universality or the ability to guarantee the minimum consumption, or vital minimum supply. Late payment generally occurs among the poorest sectors of society, but this is not always true. Late payment also occurs among the middle and upper income groups.

One factor affecting late payment of water bills is unemployment and informal or sporadic employment. Irregular income obliges people to prioritize their spending – on food and rent, for example – over paying their service bill. Also, families often accumulate too much debt, generally in the informal lending market (usurers) charging exorbitant interest rates. There are other socioeconomic problems that have an effect on late payment and cause service interruptions, such as displacement caused by violence or a shortage of economic possibilities.

What stands out is the fact that delinquent payment rates are higher for water and sanitation services than for electricity and cellular phones, even among the poorest sectors of society.

Possible Solutions

- Temporary financial aid to the unemployed and displaced families specifically for paying their water and sanitation bills. A government agency that specializes in social action should be put in charge of this.
- Legal authority to emit payment when invoices are received and a process of direct payment to the service companies.
- Special constitutional, legal and monetary protection to users who are in highly vulnerable situations so that service will not be cut.

- A legal ban on suspending service to hospitals and jails and prisons, plus legal means for obliging officials in charge of government budgets to directly pay funds assigned to cover the costs of service.⁵⁵

Experience with Prepaid Systems for Water and Sanitation Services Bills to Prevent Delinquent Payments

Prepaid systems are currently being used by several public service companies to prevent delinquent payments and reduce service suspension to the poorest residents of urban areas. This is also offered to families who have had their service cut due to non-payment. The system has been used extensively in companies providing electric power to so-called “hard-to-manage communities” (slum neighborhoods, lands occupied by squatters, rural populations) but it is just being tried out as a pilot project in the water and sanitation services sector.

Vital Minimum Supply

Legal formulas must be developed ahead of time to create the legal concept of the vital minimum supply and to regulate the source of financing as well as the target population.

- The “vital minimum” is a supply of water that cannot be interrupted under any circumstances. But it is not free and should not be a universal payment to all the poor. It is a subsidy complementary to existing rate subsidies, which have been described earlier, and should be approved for people living in extreme poverty and vulnerability. Those who receive this benefit must register with a Government Social Action Office, which will ascertain the applicant’s eligibility, verify the information and follow up. This should be a temporary measure.
- This would be approved for very vulnerable individuals ⁵⁶.
- This will be classified as transitory assistance, in certain cases by force majeure, independently of the socioeconomic condition of the individual.
- The government office or authority in charge of the subsidy should be clearly identified.
- Government offices below the level of the national government, usually local authorities, are in charge of guaranteeing payment of these subsidies.

55. In Colombia, mayors can be fired if they do not assign funds correctly and pay for public services provided to hospitals, schools and government offices. Not many have been fired even though there are still high levels of delinquent payments in these government offices.

56. Poor unemployed single mothers, children, indigenous minorities, and other groups, including refugees, migrants, exiled and displaced persons, hospitalized individuals, prisoners and detainees.

- The “Solidarity Bonus” could be a mechanism for assigning the subsidy. It should be paid directly by the government office in charge of the subsidy to the service company.
- Regulators, once they obtain legal support, could establish the concrete conditions for approving the vital minimum guarantee, under the following conditions:
 - How the service supplier will recover the costs of maintaining the vital minimum supply:
 - The service companies will receive the subsidy funds through a direct, obligatory payment from government budget accounts.
 - A level of basic consumption will be defined on which to base the vital minimum supply.

Levels of Quality

There are several legal difficulties involved in establishing differences, by regulatory means, in the levels of service quality. For example, in Colombia, when Law 142 of 1994 established a general framework for domestic public services, it required neutrality in service levels and did not stipulate any differentiation in the levels of quality and service.

Using regulation, it is possible to introduce differentiation according to minimum cost technologies and establish standards for service and engineering. In fact, several companies in Latin America already have concrete experience in this area and are studying non-conventional technologies to reduce cost. It should be noted that the quality of water apt for human consumption should be the same that is supplied to any urban consumer living in a normal neighborhood. Also, different types of materials can be used to make domestic connections in low income neighborhoods or for informal urban developments. Different techniques can also be used in relation to how deep pipes are installed or the inspection units. All this is aimed at simplifying engineering standards and reducing costs and rates. Temporary systems for disposing of human waste also can be adapted using the same ideas. As slum neighborhoods become legal and are consolidated into the texture of the urban environment, the service installations and service norms will improve until they reach the general level of normalcy in the city. This effort to improve service levels in the neighborhoods should be accompanied by comprehensive social action aimed at improving neighborhoods, equipping urban areas, public transportation, and options for better employment and income. We should avoid, above all, “graduating the poor” and limiting the opportunities for socioeconomic improvement to these poor communities. The Regulatory Commission would be in charge of precisely regulating this aspect because of its implications for rates and condition of service. The technical norms set by the ministries should formally incorporate these exceptions.

Socioeconomic Levels and Cross-Subsidies to Finance Services for the Very Poor

In Colombia, Law 142 of 1994 anticipated mechanisms for cost-sharing among different user groups. Using information from the different service companies, the regulator calculates efficient economic cost and sustainable financial cost for supplying services. Legal stipulations were established for sharing these costs, giving rise to differential rates among different groups in the population. These different levels, called socioeconomic strata, were used with a goal of setting up a plan for subsidies and rate contributions among consumer groups. This is a “cross-subsidy” that is effective for use with domestic public services such as water, sanitation, electricity, and gas. Through this cross-subsidy financing, higher income users contribute with a tax or surcharge to cover the subsidies of the very poor, who pay a lower rate.

The population of each city is classified according to the urban or rural location of their homes and certain physical, socioeconomic land registry characteristics. The system is called “socioeconomic strata.” It is obligatory for all mayors to classify the housing in their cities, urban areas and rural areas according to strata, in keeping with the methodology defined by the National Department of Statistics and the Agustín Codazzi Geographical Institute, which are in charge of land registration. The six socioeconomic strata are listed as: Level 1 (Low Low), Level 2 (Low), Level 3 (Medium Low), Level 4 (Medium), Level 5 (Medium High) and Level 6 (High).

The solidarity contribution is charged to Levels 5 and 6. Industries and commercial customers also pay the solidarity contribution. This contribution ranges between 25% and 85% of the cost of service, and can be more depending on each city and the rates set by the city council. Customers in levels 1, 2, and 3 receive the subsidies. Level 4 pays the cost of service, but does not receive a subsidy or pay a surcharge.

For example, in Bogota, customers in levels 5 and 6 can pay up to a 70% surcharge under a variable charge, and 170% plus the surcharge under a fixed charge. The subsidies in Bogota cover 100% for consumption of six cubic meters of water in levels 1, 2, and 3, and are accompanied by subsidies between 20% and 70% of consumption between six and 20 cubic meters.

Under this plan, the idea is that companies providing water and sanitation services recover the total cost for providing the services. The service providers directly collect contributions made by the wealthier groups on their bills, and use these resources to finance the rate subsidy received by the very poor who live in their service area.

The cities establish the percentages applied to subsidies and to the contributions, according to minimum percentages and other considerations set by law. City councils are obliged by law to create the so-called “Solidarity and Redistribution of Income Funds” (FSRI), which are administered by the city Councils. The funds administer any surplus contributions or any deficits from financing subsidies.

Using direct financial transfers from the General System of Participations (SGP), the central government seeks to cover the deficits and subsidies that some cities have because there are no high income groups or strong commercial and industrial

sectors that help to finance them. The contributions and subsidies are considered fiscal resources and do not form part of the regular income of the service companies.

The scheme aims at recovering all the costs companies incur for providing services. Nonetheless, some subsidy financing deficits are produced that affect the sustainability of service in cities where the number of high income customers is small and the majority of users belong to low income groups. Law 1537 of 2012 created the National Solidarity Fund for drinking water and basic sanitation services, which complements the municipal FSRIs. This seeks to complement subsidy financing in cities that meet the legal requirements for subsidies and the creation of FSRIs. All this is done because many cities do not transfer the funds provided by the central government via the SGP to finance the subsidies. They prefer to use these funds to finance their own projects that can be covered by SGP funds.

The Imbalance between Investment Costs and Income in Urban Centers

The investments required for supplying water and sanitation services are long term. The useful life of these facilities is 40 years and the annual rate of capital recovery is quite low. It is worth illustrating this imbalance between investments and income with an example.

In some of the large state-owned companies that supply water and sanitation services in Colombia, the annual recovery rates on capital are around 2.1%, a very low level that does not provide incentives to private risk investors. The average rate for the Bogota Aqueduct Company “Empresa de Acueducto de Bogotá), which has the highest water rates in the country and the second highest for sanitation services, only allows for partial recovery of the annual investments made in water, sewage systems and the aqueduct, which are COP 500 billion (USD 280 million) per year. Only 38% of investments in the rain water collection and sewage systems is financed through the sewage rates, while the remainder comes from a tax collected by the city. It should be noted that the major share of investments made by the Bogota aqueduct are for sewage systems, which handle a combination of sewage, rainwater, and grey water.

This imbalance has produced a strong negative incentive to private investment in programs such as water or sanitation services, which require long-term commitments and investments. As a result, the private investment in drinking water and sanitation services in Latin America with the notable exception of Chile, tends to be more concentrated in specialized service contracts oriented toward administration, operation, maintenance and refurbishment of water and sanitation systems. These private sector contracts are aimed at achieving earnings through efficiency, fundamentally by reducing commercial and technical losses as well as optimizing operation and administration of the companies. This type of optimization is highly profitable

under regulated rates, which in many cases are based on indicators generated by sound management and do not require larger investments. The private operators oversee investments in expansion. The expansion projects are carried out by contractors and builders contracted, on many occasions, by the service companies. Sometimes they are directly contracted by government agencies. Investments are financed by funds from the central government. Private companies do not invest their own money or assume medium- or long-term credit risk in providing water and sanitation services.⁵⁷

To summarize, efficiency in operation and administration plus effective loss management pushes forward investments in expanding infrastructure in time, which saves money and over the long term reduces rate increases. In aqueduct systems in the large cities, the problem of losses is the determining operating factor.

So it is not by chance that the large urban and sewage systems in Colombia belong to companies owned by city governments. Nor is it by chance that other cities⁵⁸ have been able to advance programs using private operators, but where most of the investment funds come from the government. The large cities have water and sanitary systems that were started during the first half of the last century, and were able to develop solid government owned companies with a certain degree of institutional stability.

Financing for projects in water and sanitation services comes from government support, in this case municipal budgets and transfers from the central government. There is a variety of different models, plus subsidies. Recently, financing this area has been concentrated in comprehensive housing projects, the approval of subsidies for connecting water systems to homes and a focus on developing priority interest housing and social interest housing in large urban area. In Colombia, 23% of the cities have population between 100,000 to 500,000 inhabitants, and there are at least eighteen (18) intermediate cities with these characteristics. Fifty-one percent of service providers serve populations between and 10,000 and 500,000 inhabitants. Four service companies work in cities that have more than 500,000 inhabitants each, and represent more than 43% of the population served.

But what is the type of investment that is being made? In the large and intermediate cities, investments are being made in replacement and repair, expanding service and improving installations in deprived neighborhoods. Currently, the government is promoting investments in sewage treatment plants, under plans such as BOOT or public-private associations, occasionally structured as 10 to 20 year projects. These are financed and built by private companies, but service rates for sanitation services provide the finan-

57. In Colombia, factors such as the average investment cost or average incremental long term cost of the rate formula is around 70% of the rate for level 4, which is the rate at cost. The formula assumes a useful life of 40 years.

58. For example, Barranquilla, Cartagena, Santa Marta, Palmira, Monteria, Tunja y San Andres.

cing and occasionally they receive loan guarantees from the central government. There can be a great deal of uncertainty as to their impact on rates for the poorest groups and eventual long term effects on the financial sustainability of the companies if the projects turn out to be too expensive because of private sector financing⁵⁹.

Investments in rain water drainage systems are the order of the day. In Colombia, rainwater drainage and sewage do not form part of the regulatory or legal framework created by Law 142 of 1994, covering domestic public services. This financing depends in large part on resources provided by municipal and national governments. The responsibility for urban drainage systems betrays a serious lack of definition. It is a primary responsibility of municipal governments, but many sanitary service companies take over these operations and make investments in drainage systems with financing based on government funds. More than one sanitary service company may invest in and operate mixed systems of drainage systems for sewage, grey water and rain water, financing the operation to some extent with rates approved for sewage services. This is a priority issue that should be the object of legal and regulatory action in Colombia.

The “Preparing Homes” Program (HV) in Poor Neighborhoods of Medellín, Colombia⁶⁰

In poor neighborhoods of Medellín, Colombia, this program demonstrates the expansion of services to poor neighborhoods which receive migrants from the rural areas of Antioquia Department and other areas. It is developed using funds from the service companies, and is designed to supply water, sewers and other services (electricity and gas) to low income families. Since 1968, Public Companies of Medellín (EPM) has been supplying beneficiaries with connections to water pipelines and internal domestic installations. Payments are made monthly. The companies work in cooperation with Medellín’s Secretariat of Social Development and Secretariat of Municipal Planning. This contracting model, generates jobs and income, and meets the requirements of social security. Work is done to make housing livable, and roads are built in the area. Working with the community council, the area is equipped with public services, and steps are taken to prevent wasting water. The company spends COP 15 billion per year in net subsidies (USD 8.3 million per year), and these are financed thanks to the Social Responsibility Business Program (RSE). The EPM faces several difficulties in this project. There is no urban develo-

59. Emcali, a company with more than 800,000 users, came close to liquidation for, among other reason, two BOOT projects that were built in the 1990s. One of these is the sewage treatment plant, which continues paying its USD 700 million in debt with government money.

60. Analysis based on the author’s interviews with officials from EPM.

per to the cost of building water and sewer networks in the price of housing. The company finances these projects over 20 years, and this has a major impact on bill payment since subscribers have a very low capacity to pay. Moreover, the situation is complicated since receiving assistance from the city governments involves complicated procedures and long delays. In terms of rate regulation, the regulator (CRA) must take on regulatory models that are suited to each case. Given that the lowest economic level receives a subsidy of 70%, and the investment component for the rates represents 60% of the total rates, the subsidy on consumption of energy is enough to pay back the totality of costs and investment. Nonetheless, the CRA is slow to find a solution for this problem. Finally, since the cost to the user is financed at interbank rate lower than the market rate, payment for connections (water network plus other items) being financed, is equivalent to more than 100% of the bill, and the EPM must turn to donations and assistance programs. This should be resolved by channeling funds from the government budget, including state programs, and promoting public and private cooperation. In addition, pre-payment plans should be developed and differentiated service standards should be used based on market categories such as regionalization, size of the population and differentiation between the applicable technologies, so that customers can be charged according to their metered usage.

The Imbalance between Investment Costs and Income in Small Cities and Rural Areas⁶¹

Colombia's total population is 46.7 million people. According the National Statistics Department (DANE) and the Superintendency of Public Services (SSPD), in 2010 85.6% of Colombians--or 40 million people--had drinking water and 79% – 37 million people – had sewage services.

There are 1,102 urban centers where less than 70% of the municipalities have less than 25,000 inhabitants. Around 600 small cities directly supply service from the local mayors' offices, and around 300 small municipal companies, or cooperative public associations (APC), provide water and sanitation services.

According to the SSPD, while 70% of the population is concentrated in the cities with more than 100,000 inhabitants and receive high quality drinking water, residents of cities smaller than 100,000 receive service with a medium to high level of quality. Sixty-one percent of service companies are located in cities with a population less than 100,000, and 71% percent of cities with less than 10,000 habitants have a high financial risk. Currently, cities with populations between 10,000 and 100,000 inhabitants lose more than 60% of their water. These systems offer an average of 19 hours of service, and also have the lowest water measurement indices.

61. This section was based on information prepared by the SSPD in June of 2010, for a working seminar with ECLAC. Presentation by Jorge Salinas, Delegate Superintendent for Water and Sanitation of the SSPD.

In these cities, the local government provides services directly through a municipal government office. They are characterized by a mixture of city administrative practices, technical operations management and commercial practices. There is no clarity in finances, since there is no separation between the city's books and the books of the municipal water service. They do not charge rates according to the accepted rate technology, and normally charge customers rates below operating costs. As a result, the rates only cover administrative and basic operating costs. If investments are made to improve service, they depend on the availability of funds from the SGP and other central government resources that are administered by the municipal governments. There are serious deficits in sewage treatment plants and garbage disposal.

These are companies whose investments are highly dependent on government financing. They suffer from institutional weakness, dispersion, political interference and instability due to frequent changes in local administrations (every four years). Many times the problems of small and mid-size companies that depend on municipal governments do not lie in the need to make significant investments. "It is not a problem of public works or engineering. The cash held by a successful company attracts politicians and rogues."

Many city governments have received funds from the central government two or three times to finance the same project. This is nothing more than a lack of business management in the service sector, institutional weakness on the part of the local government and excessive control from the political opposition in the government. The communities in small towns, or those with less than 25,000 inhabitants, resist the use of specialized companies out of fear of higher rates. Political pressures exert a heavy influence on local policies, thus impairing decisions to establish adequate services.

In contrast, 203 city governments contracted 131 service operators with private participation to provide these services (mixed and private capital). This did not happen in the three main cities which have service companies that operate with public funding. Specialized operators are characterized by administrative, financial, technical, operational and commercial management, and operate with standards that are acceptable to regulators. They also charge rates that are in keeping with approved rate methodology. They make investments to improve service in terms of coverage and quality and they provide information to the government through the Unitary Information System (SUI). They are viable financially and they normally have adequate service indicators.

Finally, there are many difficulties consolidating regional programs that bring together several cities as voluntary partners in a regional company. Once the company is set up, the cities do not pay the subsidies they are legally obliged to transfer to the company. Under the current scheme, city governments apply political pressure so that the balance of subsidies will be paid exclusively to the city that generated the subsidies, refusing to transfer occasional surpluses to neighboring towns. Mayors and city councils control the business plan, and they

influence it to such a degree that the water and sanitation company is viewed as a source of funds and liquidity for the mayor's office. Local administrations want to control contracting and the public funds that are transferred from the central government.

Possible Solutions:

- It is necessary to refocus the regulatory scheme for these cities. Currently, Colombia's regulatory authority is developing a simplified regulatory accounting methodology for these small service companies, and is reviewing the general focus of regulation with the goal of producing differences in regulatory treatment. It is evaluating the legal viability and utility of setting up three different groups of service providers based on the number of customers served.
- An institutional redesign promoted by the central government, which implies constitutional reforms for:
 - Creating legal and fiscal incentives for integrating companies in rural systems whenever it is viable and technically and financially appropriate.
 - Establishing sanctions for mayors who do not do a good job of providing water and sanitation services. This could include sanctions on mayors such as removal, loss of mayoral duties with respect to providing these services and transferring these services to an agency at the national or other official level with the financial or institutional capacity to manage them.
 - Strengthening technical and budgetary faculties of the regulator in charge of supervision, control, and sanctions for service companies that fail to meet standards.
 - Strengthening of a centralized agency which, besides managing technical assistance programs, would promote the institutional development and restructuring of service companies that are suffering from financial, technical, operating and management problems. This entity should also receive financial resources and legal instruments that would allow it to carry out mergers, restructuring and liquidations. It should be noted that the CRA and the SSPD already have the legal powers to carry out some of these activities.
- Government programs that are focused on the most vulnerable members of the population and are oriented to increase coverage of housing and public services associates with housing.
 - Promote programs of public-private cooperation to create development models for housing.

- Regulatory Adjustments
 - Clear incorporation of public funding to finance service infrastructure in the system of regulatory accounting.
 - Defining government funding to finance investments in service infrastructure under strict conditions linked to the capital of service companies.
 - Placing differential service standards into regulatory accounting, methodology and formulation of tariffs. These standards would reflect different structures in market, population density, regionalization and differences in applicable technology.
 - Clearly differentiate structures and market size so that differences in dispersed rural and semi-rural markets, mid-sized populations, and large urban centers can be managed.

Conclusions

This essay had as its starting point a brief review of the development of the right to water and sanitation services through human rights decisions made by the United Nations. Even if international legal instruments do not consider access to drinking water and sanitation services as a human right in and of itself, an increasing number of governments are recognizing this right in their constitutions and their national legislation, and some national courts have decided in favor of this right. Taking this international view as a starting point, the document develops the legal foundations of the right to water and sanitation services. It affirms that the universalization of these services in our countries is the best way to put this right into practice. Fundamentally, this right works to guarantee continuity of life and health, and is equally necessary for development of social and economic right in our nations. To implement these rights, it is necessary to not only make constitutional commitments to the right, but also to advance it by means of legislations and regulation.

It is both the central government and other regional government entities that in the final instance guarantee the universal right to water and sanitation services. And in this role, these entities are obliged to create the legal and regulatory tools to guarantee universal access. This may be done directly or through companies that provide these services, supporting them with the appropriate financial resources, subsidies and other tools necessary for their success.

The essay analyzes the need to establish the political will to achieve universal water and sanitation services by means of a specific law, and to design a “plan to provide universal water and sanitation services.” This will, in turn, trace the general outlines, principles and tools that will allow for detailed regulatory decisions, as well as the specific economic regulation required for the plan’s

success. Simply providing for the right to water and basic sanitation services as a constitutional human right, and not just as an economic or social right, is not sufficient for its application. Other legal tools must be applied that reflect not only the constitutional will, but also the political will of the government to achieve universal access to water and sanitation services and obtain the necessary financial resources.

Moreover, it is the law that will allow governments to establish duties of the regulator and its relationship with other government entities, especially those that are attached to regional, state, and local authorities. With a few exceptions like Chile, these agencies generally are in charge of ensuring the efficient delivery of water and sanitation services, either directly or through service companies.

One important factor is to promote the compliance of regional, state, and local authorities. It will be of great importance to define what to do when these officials fail to comply with the law or are deliberately reluctant to move ahead with providing massive water and sanitation services. Formulas can be developed to promote their cooperation. This can be done voluntarily, as the case of Brazil's Law 11,445 of 2007, or by means of a sanction delivered by an administrative authority when an official fails to comply with the law or is ineffective in advancing the work related to universal coverage of these services. In the latter case, the official would be subject to a summary and expedited due process, and would lose the responsibilities assigned by law. Another official would take over these duties. It is also necessary to integrate the obligation of providing universal service with the existing legal business and regulatory regimen covering water and sanitation services, a legal framework that is already in effect in almost all Latin American countries. Concretely, we must define the obligations, tools and functions of regulators as well as an institutional structure. In this way, regulators would be able to regulate, advance projects, demand compliance or sanction ineffective compliance of the mandate for universal services, using means available under the law. Only through a prior legal mandate will regulation and control authorities be able to oblige regulated parties to meet their obligations and follow their instructions. Regulators will also be able to supervise, control or sanction in keeping with the political and economic commitment of the state to provide universal water and sanitation services.

Companies that provide water and sanitation services must assume administrative, operational, maintenance and investment costs with a goal of guaranteeing operating efficiency and, as was said before, present and future expansion of these services. Cost recovery should be carried out in reasonable periods of time, and other conditions of economic and social sustainability should be maintained in order to develop universal services. The tariff system should cover the cost of expansion to ensure that these services reach the entire population, without any discrimination, and including future citizens.

Under some circumstances, the principles of equality and universality may contradict the principles of financial strength and efficiency, creating problems for the regulator as to which of these principles will come first. To ensure financial strength while providing services in an efficient manner could imply rate levels that are not acceptable under the principles of universality and equality.

To guide the actions of regulators, it is necessary that the legal text precisely define the hierarchy of criteria and provide the legal, regulatory and financial tools to carry them out. The principles of universality and equality should be guaranteed for users who meet very precise characteristics related to their socioeconomic status or the temporary inability to pay for service, even though the individual is not poor. The principles of efficiency and financial strength are indispensable to create conditions over the long term that preserve the sustainability of these services and convert the principle of universality into reality.

There are several ways to channel subsidies to the very poor, allowing them economic access to water and sanitation services. The essay describes the Colombian experience of providing subsidies to certain user groups. These subsidies are financed by taxes on high income individuals, industry, and commerce. Chile's plan for assigning state aid to the very poor for the purpose of financing their payments for water and sanitation services is also summarized briefly.

It is also necessary to establish a prior legal provision that defines the vital minimum supply of water and regulates the source of financing to cover target population. The "vital minimum" is a supply of water that cannot be interrupted under any circumstances, but is not free nor should it be paid universally to all the poor. It is a complementary subsidy to the existing rate subsidies, and is authorized for people living in extreme poverty and vulnerability.

The debate continues over free service without any responsibility on the part of the user. The issue of free service is not the most relevant if there are enough financial resources to cover this expense. The truly relevant element is that water supply cannot be interrupted or subject to any reductions under any circumstances. This creates incentives that are detrimental to the sustainability of these services, and encourage abuses, since there is free and permanent access to water with no obligation whatsoever on the part of the beneficiary. Finally, it would be valuable to evaluate how users who receive the vital minimum respond to certain incentives. The idea is to find out if uninterrupted access and the free vital minimum increase average consumption for this type of user, if they pay for water use above the vital minimum and if there are incentives for fraud due to illegal connection, etc. Since these are fiscal resources, they should be the object of supervision and monitoring to find out if those who are benefiting are the object of government protection. It would be desirable to make this benefit temporary, and to make those who receive it contribute by saving and conserving this resource.

Investments in water and sewage system are long term, with useful lives of 40 years and very low annual capital recovery rates. There is an imbalance

between income and investment. In some of the large water and sewage companies in Colombia, the annual recovery rates on capital are around 2.1%. This is a very low rate that does not attract private risk capital. Average rates for the Bogota Aqueduct Company, which has the highest rates for water in the country, and the second highest rates for sewage services, partially recover the annual investments it makes in water, sewers, and rainwater aqueducts, some COP 500 billion (USD 280 million per year). Only 38% of investment in the water and sewage collection system is financed with sewage rates, and the remainder is financed through a property tax levied by the city.

In contrast, mid-sized cities in Colombia have contracted private operators to provide these services (mixed-capital and private capital). These specialized operators are characterized by administrative, financial, technical, operating, and commercial performance. They meet acceptable standards in keeping with regulation, and they charge rates according to the accepted rate methodology. They make investments that improve service in terms of coverage and quality, they demonstrate financial strength and they post acceptable service indicators.

The Technical and Management Perspective: Social demands, long-term actions and efficient management in Sao Paulo

Dilma Pena

What does development mean? Mario Vargas Llosa, the great Peruvian writer gives us an answer: it is the toilet. He says this in *The Smell of Poverty*: “The emblematic goal of civilization and progress is not the book, the telephone, the Internet, or the atomic bomb, but the toilet. The place where human beings empty their bladder and their intestines is the determining factor to know if they are still in the barbarity of development, or if they have begun to progress.”

Mario Vargas Llosa’s keen observation is the fruit of his personal experience and his horror when he read the United Nations report, *Beyond Scarcity: Power, Poverty, and the World Water Crisis*. Coordinated by Kevin Watkins and widely recognized by professionals in sanitation across the world, this United Nations report confirms that more than 1 billion people in the developing nations do not have adequate access to water and that 2.6 billion do not have sanitation services. The report concludes that the origin of these deficits is not so much in the availability of water, but in political decisions.

Domestic consumption represents a minimal amount of water use – less than 5% of the total – but even so, access to drinking water and sanitation services is very unequal in society. So, the lack of access to drinking water and sanitation services is attributed to policies rooted in power, in poverty,

and inequality. And to a lesser degree it is due to the physical shortage of the vital liquid. Despite the availability of water for the majority of the population, it is in general available in limited supply. Government organization is what establishes the public policies that determine the population's access to goods and services. In the majority of cases (almost as a rule) the needs of the individual are not taken into consideration. What really exists is a set of norms controlled by the government and the market, where the individual is submerged in a world of institutional economic and political arrangements.

Working through its institutions, the government should guarantee the functioning of the market, and the adequate distribution of public and environmental resources in society. When markets are more regulated, public resources are sustainable. As a result, access to public goods and services depends on the organization of political forces and the formation of social consensus. In reality, access to public goods and services increases as the wealth of a nation grows, but this is not enough to guarantee that goods and services will be available to everyone. Access to water and sanitation services is an eloquent example of the need for political consensus in organizing financing policies for the sector.

This chapter demonstrates how the State of Sao Paulo, part of the Federative Republic of Brazil, achieved a consensus to provide universal access to drinking water and sanitation services until the end of this decade. This consensus is based on the principle that there is neither development nor civilization without drinking water and sanitation services since, aside from being a fundamental human right, it is a necessary requirement to protect our natural resources and ensure environmental sustainability. Briefly, this introduction argues that universal services are not a result of the will of technical groups, famous institutions, even less of paternalistic actions, despite their large budgets. Universalization is a result of society's demands and a political consensus resulting from the establishment of national criteria. The first section of this chapter describes how the state of Sao Paulo, responding to social demands, has organized itself to set the goal for universal water and sanitary services in its territory. Section 2 describes the demographic context of Sao Paulo, its economic and social development, as well as the availability of water resources and the organization for managing them. Section 3 describes the principles and stages of elaborating the sanitation policy, the legal framework and SABESP, the Sao Paulo State Basic Sanitation Company (), the principle tool for carrying out this policy. Finally, we summarized the learning process over the recent decades and described future challenges.

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Context

Sao Paulo is the most populist state in the country, with 41.3 million inhabitants – or 21.6% of Brazil's population, according to the 2010 census of the Brazil Institute of Geography and Statistics (IBGE). Nevertheless, its territory – 248,200 square kilometers – represents only 2.9% of Brazilian territory. As a result, Sao Paulo has a very high demographic density: 166.2 inhabitants per square kilometer. Its urbanization rate (95.9%) is also high, with 39.6 million people in its urban areas.

Sao Paulo's demographic structure favors opportunities for sustainable social and environmental development. In the last decade, the population growth rate was only 1.09%, less than the national average of 1.17%, and showing a declining tendency in the last three census periods. Due to a reduction in birth rates and an increase in the population's life expectancy, the evolution of its age groups led to a decline in the economically inactive population (children and seniors), and growth in the potentially active population (adults). It is estimated that the duration of this demographic bonus will be about 20 years more, between 2000 and 2020.

According to demographers and economists, this is a special period for Sao Paulo and for Brazil. This demographic bonus can accelerate development if it is accompanied by public policies in education, recovery and protection of the environment, urban revitalization and industrial innovation, all within a macroeconomic and institutional environment favorable for expanding the economy and business.

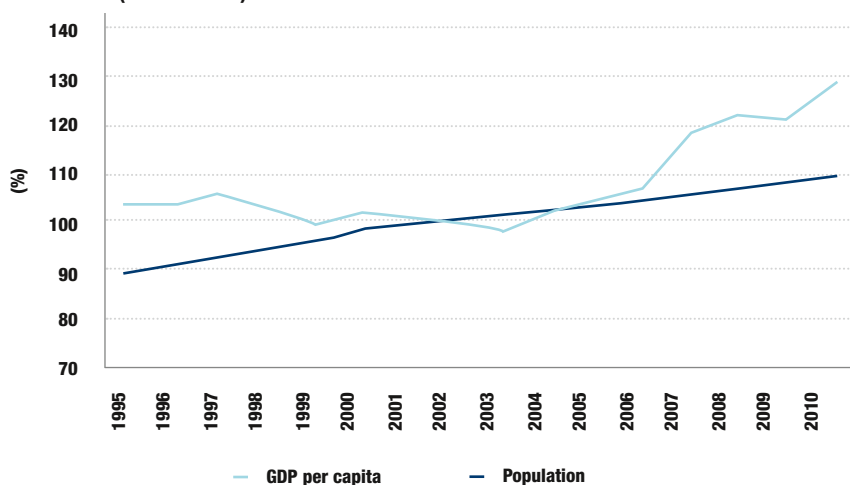
This combination of the demographic scenario and a favorable economic situation provided very encouraging results, with average annual GDP growth for the state of above 5% between 2006 and 2010. As a result, GDP growth per capita in Sao Paulo at current prices was 7,600 reals in 1995, then reached 18,000 reals in 2005 and 29,200 reals in 2010. This represents real growth of more than 21% in the last 5-year period.

Per capita GDP increase in the recent period reflects a growth tendency that should continue in the coming years.

We should add that the state of Sao Paulo is focusing efforts on maintaining fiscal equilibrium in its public accounts and income growth with the purpose of maintaining high levels of investment in all areas. This is a tendency that should be maintained over the coming years.

In the social arena, the state government has assigned priority to the most vulnerable communities with programs to improve the quality of life, including professional training, income generation, access to education, health, housing, drinking water and sanitation. Beyond attention to the specific needs of the poorest communities, classes C and D began showing new and increased demands as a result of the growth in real income, which stimulated economic activity in the state and at the same time increased pressure for improved services.

Graph 7.1: **Evolution of GDP per Capita and Population Growth in Sao Paulo - 1995-2010**
(2002 = 100%)



Source: IBGE and the Seade Foundation.

Table 7.1: **Projections of GDP Growth for Sao Paulo and Brazil (%)**

Region	2011	2012-2015	2015-2031
Sao Paulo	4.2	4.5	4.2
Brazil	4.3	4.4	3.7

Source: FIPE/USP and the Secretary of Planning and Regional Development.

Substantial investments in drinking water and sanitation services caused a significant increase in the coverage of these services. The following table shows indicators for Sao Paulo in comparison with average figures for Brazil and other states. Nevertheless, despite advances in coverage, there still remains much to do, mainly in indices for collection and treatment of sewage. This is especially so in the periphery of cities, where there are serious problems due to irregular occupation of land (squatters), which occurs frequently in risky areas susceptible to flooding and mudslides.

Sao Paulo has four metropolitan regions (Sao Paulo, Baixada Santista, Campinas and Vale do Paraiba e Litoral Norte), three urban centers (Jundiai, Piracicaba and Sorocaba) and two micro-regions (Bragantina and Sao Roque) that concentrate 74% of the state population in their territories and cover 51% of

Table 7.2: **Housholds with Access to Sanitation Services (% of homes) in Sao Paulo, in Other States.⁽¹⁾**

State	Water Supply (General Network)	Sewage Collection (General Network)
	%	%
Sao Paulo	96.4	86.8
Other States	85.0	46.5
Brazil	87.5	55.5

Source: IBGE, 2010 census, author's research.

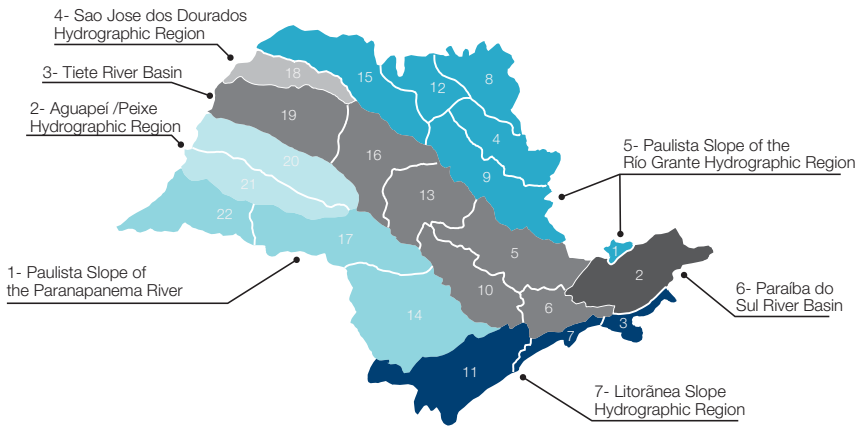
(1) Refers to urban zones, cities and districts. Does not include rural population.

the urbanized areas. This represents a demographic density of 611.23 inhabitants per square kilometer. As is to be expected, these areas have the greatest shortages of public services and generate the greatest demand for urban public services. The region called “Paulista Macrometropolis” (Macrometropole Paulista) has 103 municipalities and is responsible for 27.7% of national GDP and 82.76% of the state’s GDP. Within this perspective, Sao Paulo develops technical studies, programs and projects for the region taking into account the potential for the urban areas and their common problems. The availability of water stands out as one of these problems in each region.

The hydrographic division of Brazil adopted by the National Water Agency (ANA) includes 12 watersheds in the entire national territory. Sao Paulo has two watersheds in its area: the Parana River and the Atlantic Southeast. To manage the hydraulic resources of the state, 22 management units were created. Called State Water Resource Management Units (Unidades de Gerenciamiento de Recursos Hidricos do Estado - UGRHI), they are: 1) Serra da Mantiqueira, 2) Paraiba do Sul, 3) Litoral Norte, 4) Pardo, 5) Piracicaba, Capivari and Jundiai, 6) Alto Tiete, 7) Baixada Santista, 8) Sapucaí Mirim/Grande, 9) Mogi-Guaçu, 10) Sorocaba and Medio Tiete, 11) Ribeira de Iguape e Litoral Sul, 12) Baixo Pardo/Grande, 13) Tiete/Jacare, 14) Alto Paranapanema, 15) Turvo/Grande, 16) Tiete/Batalha, 17) Medio Paranapanema, 18) Sao Jose dos Dourados, 19) Baixo Tiete, 20) Aguapei, 21) Peixe and 22) Pontal do Paranapanema.

The available water produced within the limits of Sao Paulo is equivalent to 3,120 cubic meters per second, and this reaches 9,800 cubic meters per second, including water from other states. Nevertheless, the use of this available water is conditioned by its economic, financial and legal viability.

Map 7.1: **Hydrographic Divisions of Sao Paulo State**



With water availability of 3,129 cubic meters per second, or 2,209 cubic meters per person per year, Sao Paulo State is classified “poor” in terms of available hydraulic resources.

Table 7.3: **Water Availability**

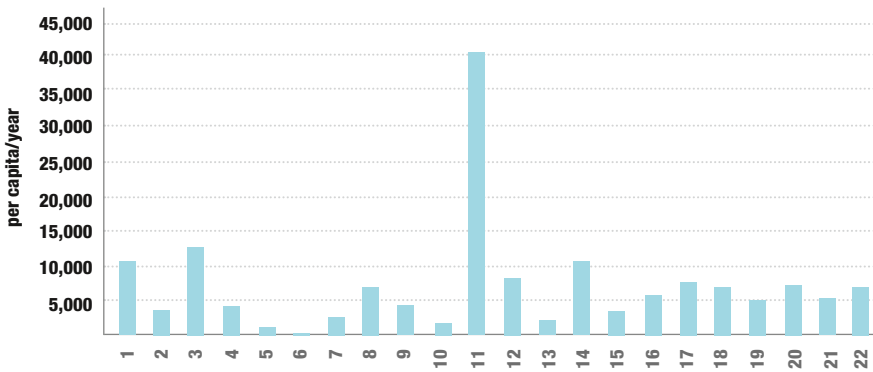
United Nations Classification	Water Availability (cubic meters per inhabitant per year)	Region
Abundant	Greater than 20,000	Brazil (35,000)
Adequate	Between 2,500 and 20,000	Panama (12,600)
Poor	Between 1,500 and 2,500	Sao Paulo State (2,209)
Critical	Less than 1,500	Pernambuco State (1,270)
		Piracicaba Basin (408)
		Alto Tiete Basin (200)

Source: United Nations

Moreover, the distribution of water availability in the 22 management units is very imbalanced, as shown in Graph 7.2. The most serious situations are those of UGRHI 5 and 6 (Piracicaba and Alto Tiete), which together with management units 10, 13, 16 and 19 form the Tiete Basin, part of the Parana River Basin.

The Tiete River crosses the state of Sao Paulo in an East-West direction. As you can see, management units 5 and 6 are located in the area closest to the

Graph 7.2: **Surface Water Availability per Capita Relative to Water Production per UGHRI (water management unit)**



Source: State Hydraulic Resources Plan 2004-2007.

headwaters, where 60% of the state's population lives. This concentration of the population has a direct impact on the quality and quantity in a large part of the state. The impact is clearly evident on moving toward the center of the state. The Tiete River significantly improves the water quality due to the effects of dilution of discharged material and self-purification at the headwaters.

The Alto Tiete Basin is divided into six sub-basins: Billings-Tamanduatei, Cotia-Guarapiranga, Tiete-Cabeceiras, Juqueri-Cantareira, Penha-Pinheiros and Pinheiros-Pirapora – all within the Sao Paulo metropolitan region (RMSP). In these sub-basins, the per capital availability of water is only 200 cubic meters per person per year, which is considered extremely “critical” according to the United Nations classification. Moreover, this level of availability is lower than that of Northeastern Brazil, considered the country's driest region. It is also considerably below availability in the Pernambuco State, which at 1,320 cubic meters per person per year, has the lowest level in the country.

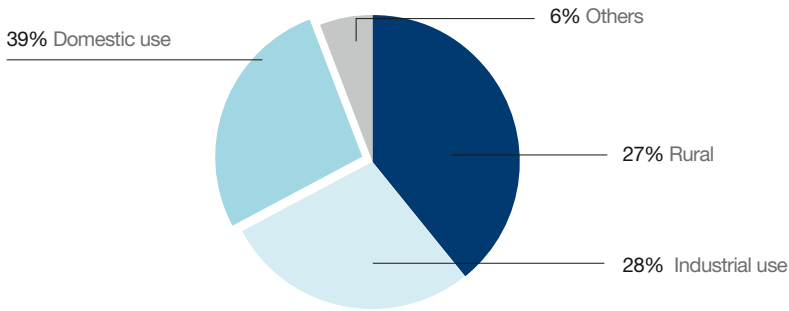
These limitations represent a great challenge for the state of Sao Paulo and its metropolitan region. The priorities set to confront the problem are the following: improve sanitation conditions in the cities, guarantee the supply of water, collection and treatment of sewage, and collection and final disposal of urban garbage. In addition, the priorities include reducing water and air pollution and preserving the areas where squatters settle in environmentally sensitive zones, especially those located near water sources.

The Metropolitan Development System of the Sao Paulo metropolitan region is the primary agency for political and institutional coordination in the region, which involves public and private actors, reconciling interests among private investors, occupation and use of the land and providing public services.

The following graph shows a breakdown of the different urban uses given to water in Sao Paulo. Domestic use represents the greatest share of total demand (39%), followed by industrial applications (28%) and rural use (27%).

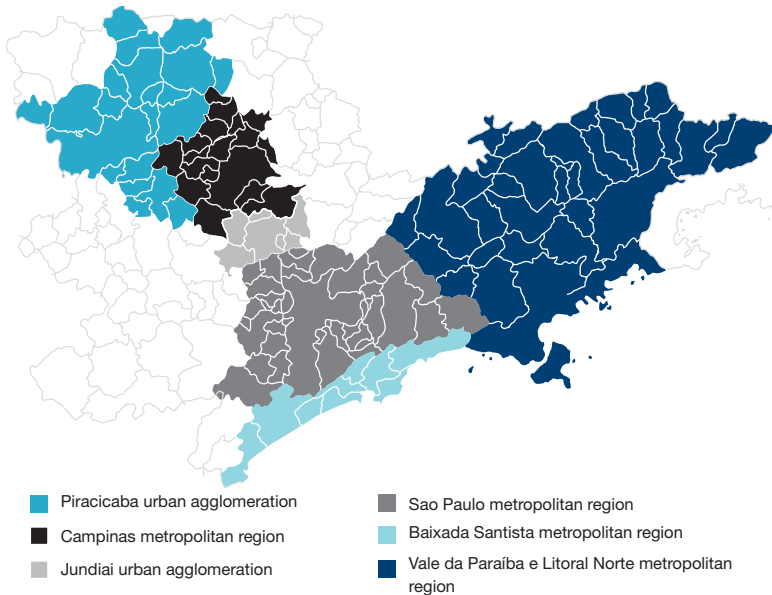
Sanitary Policy in Sao Paulo State

Graph 7.3: Demand for Water in Sao Paulo According to Use



Source: Hydraulic Resources in the State of Sao Paulo – Base year 2009.

Map 7.2: The Paulista Macrometropolis



Source: Web page of the Secretary of Metropolitan Development

The goal of sanitary policy in the state of Sao Paulo is providing a universal supply of drinking water, sanitation services and the collection and treatment of sewage before 2020. To do this, the state has the Secretary of Sanitation and Hydraulic Resources (SSRH) which, in turn work through the Sao Paulo State Basic Sanitation Company (SABESP), its main tool for achieving this goal. All this is being done within an evolving institutional environment which follows the principles of federal and state sanitation laws.

Government policy promotes a diverse group of operating companies, starting with SABESP, a government company with public and private capital. It is responsible for serving the majority of the state's population, as well as an important number of public providers that are the responsibility of municipal government and private service companies.

Table 7.4: **Legal Status of Companies Providing Water and Sanitation Services**

Legal status	Number of cities	Population
SABESP – government company	363	25,277,171*
Municipal companies	6	2,042,900
DAE – companies under direct public administration	177	2,603,152
SAE – autonomous	88	10,249,076
Private companies	11	759,083**
TOTAL	645	40,931,382

* Does not include the cities where SABESP supplies water in bulk, nor the population served.

** Includes four cities where the service provider is a specialized company (Sociedad con Finalidad Especifica), in which SABESP holds a minority share.

The institutional organization that carries out the state sanitation policy has as its main focus the separation of planning, regulation and supervision responsibilities, which are managed by state agencies, and the actual delivery of services, which can be handled by a government or private company.

Rates are the central source of financing for the services, which also maintains an ambitious investment program. In recent years, the orientation has been to increase and diversify financing from national and international sources in order to accelerate the pace of investments and meet the state's projected coverage goals.

The state's sanitation policy emphasis is planning, which is managed by the state and local governments. These plans are meant to orient the system operators and serve as a reference. With support from the state government, local and regional sanitation plans are developed which include supplying water, sewage systems, urban drainage systems and collection of solid waste. An important advance in planning for water supplies was the decision to use the

entire Paulista Macrometropolis as the territory to be covered in comprehensive investment plans and various types of services.

Providing universal drinking water service is oriented toward the following areas: maintaining the high indices of coverage already achieved, increasing efficiency throughout the systems, and increasing service to areas suffering from deficient service or lacking it altogether. Clearly, these include isolated communities and risky areas that have been built up or occupied by squatters, like the favelas (shantytowns), which need comprehensive urbanization reforms.

In recent years, most of the investments have gone toward expanding the collection and treatment of sewage, and these services are expected to reach universal coverage before 2020. The goal is to supply universal sanitation services to much of the interior of the state by 2014 and in the Sao Paulo Metropolitan Region by 2020.

Complementing the cleanup work performed on bodies of water, the state maintains and develops a complex system designed to protect its water supplies. These efforts are backed by specific legislation and special financing programs directed at preserving and recovering the resource. In this way, comprehensive operations to de-contaminate the state's bodies of water have increased substantially. In addition, there are coordinated operations to treat sewage, intervene in urban areas and take direct action with respect to bodies of water, via rainwater drainage systems in the cities and the installation of sewage systems.

According to figures from the last census, presented in the following table, the number of housing units in Sao Paulo which need sanitation services is very much lower than the average for Brazil, which reflects the results of the state government's efforts to universalize these services.

Table 7.5: **Deficit in Access to Sanitation Services in Sao Paulo and in Brazil**

Region	Housing units	Water network		Sewer network	
		Deficit	%	Deficit	%
São Paulo	12,825,453	459,797	3.6	1,696,301	13.2
Brazil	57,320,555	7,142,171	12.5	25,496,642	44.5

Source: IBGE, Demographic Census of 2010. Author's research.

In the following table, there is a similar correlation when we look at the poorest 40% of the population. The impact of the state government's social policies on access to improved living conditions for this segment of the population produced tangible results, and the deficits for the state are much smaller than those for the rest of the country.

Table 7.6: **Deficit in Access to Sanitation Services in Sao Paulo and in Brazil (40% of the poorest population)**

Region	Water Network		Sanitation Network	
	Deficit	%	Deficit	%
Sao Paulo	169,487	5.4	629,947	20.2
Brazil	4,534,043	22.0	12,102,977	58.6

Source: IBGE, demographic census of 2010. Author's research.

In spite of its efforts to achieve universal sanitation services, SABESP encountered an additional problem: the resistance of some homes to connect voluntarily to sewage networks installed by the company. The reasons for this behavior are both cultural and economic. Sometimes this is due to the cost families have to incur to adapt their housing and connect to the sewer system, and sometimes it is because of rates they must pay to the company. When housing is connected to the network, the cost of drinking water and sanitation services increases. To attenuate this problem, especially for families that have a sewage network near their homes but cannot afford to pay for the service, the state government created the Connect to the Net Program (Se Liga na Rede). This program provides a subsidy for work needed to make the connection. SABESP participates in the program, contracting and supervising the services.

Institutional Powers and Regulation

The Federal Constitution (CF), promulgated in 1988, contains the public policy principle that everyone has a right to essential public services, that is, equal and universal access to these services and an obligation on the part of the federal government to guarantee them. In the case of drinking water and sanitation services, the Constitution assigns the federal government the exclusive right to “create guidelines for urban development, including sanitation” (Article 22, IX and XX), to define areas of common powers for the three federal entities (federal, state, and local) to promote improved sanitary conditions, and to combat the causes of poverty by integrating the underprivileged sectors (Article 23, IX and X).

Ownership of drinking water and sanitation services is the exclusive area of competence of municipalities (Article 23, IX). Beginning in 1997, in metropolitan regions created under article 25, paragraph 3 of the Constitution, the states claimed ownership of supplying these services before the Federal Supreme Court (STF).

The states argue that these services were organized to serve the entire group of cities that make up the metropolitan regions. In any case, Law Number 11, 445/07 establishes the general guidelines for supplying sanitation services for the three spheres of power (municipal, state, and federal) which determine federal public policy for the sector.

In summary, defining and planning for the water and sanitary sector is an inherent responsibility of public power. The existing legal framework establishes areas of competence for the three levels of power, establishes the obligatory nature of the Local Sanitary Plan and the existence of regulatory bodies, both of which are the exclusive responsibility of the owner of these services, in this case the city.

This is the case of the Metropolitan Region of Sao Paulo, where water and sewage treatment services were created within the scope of metropolitan jurisdiction beginning in the 1970s. Today, the metropolitan water system is made up of eight integrated systems, which produce half of the 68 cubic meters per second of treated water. The sewage treatment system of the Alto Tiete Basin is made up of five sewage treatment stations serving the entire basin. The owner of this service must establish who will actually provide the services, which according to Article 175 of the Constitution can be either a public or private company. In the case of private companies, selection should always be made through public bidding.

Financing for these services comes from the rates charges for supplying drinking water, and the collection and treatment of sewage according to norms established by the regulator (Law Number 11,445/97). Subsidies can be used for setting rates for the poorest customers. Transfers of government funds may also be used to ensure the financial viability of the service provider. According to current legislation, this transfer of funds is voluntary and not obligatory for any public entity.

Regulation and supervision were strengthened when the model in Brazil and other countries in the region was changed at the end of the 1980s. This change involved the transfer of some public services to private companies through concession agreements. As a result, there was a need to regulate the contracts covering the delivery of public services.

In this area, there were two federal laws that directly impacted the sanitary sector. The first is Law Number 11,107 of 2005, referring to public consortia and cooperative agreements, which establishes that any contracts that transfer the responsibilities of planning, regulation, and supervision of services to the service provider are void. The second is Law Number 11,445 of 2007, which establishes the national guidelines for sanitation services. This law states that the signing of any contracts for supplying water and sanitation services must be preceded by regulatory norms and by the designation of a regulatory agency, which should be guaranteed independence in decision making and administrative autonomy. The innovations created by new legis-

lation produced: (i) greater integration between sanitary companies and the owners of the services; (ii) making the companies adapt to the regulatory norms, and (iii) providing more complete information on company results to regulators and customers. These legal changes have caused an adjustment in SABESP's field of activity, stimulating market competition within the sector, generating new responsibilities and obligations, but also offering new opportunities for the company.

These legal norms went into effect in 2007 with the approval of complementary Law Number 1,025/07, which created the Regulatory Agency for Sanitation and Energy of Sao Paulo State (Arsesp), which has the powers of planning, regulation, and supervision over the drinking water and sanitary sectors. This creates an orderly and predictable environment for developing the sector in the state.

There are many factors justifying a joint regulatory mandate for sanitation services and electricity in a single regulatory agency. These include the economies of scale, the scope of administrative and financial activities, as well as the combination of institutional knowledge and learning. Effectively, electric power and sanitation face similar conceptual and operating problems. Both sectors share the characteristics of natural monopolies, mainly in transportation and distribution. Both require infrastructure networks whose duplication would be very expensive. So a regulator would face a series of similar questions relative to efficiency, management quality and the operation of both these networks.

The structure of Arsesp has sectoral branches in keeping with its multi-sectoral responsibilities, including the energy councils, and the councils for sanitary organization, which work with the effective participation of the cities. Also, there are plans for creating specialized technical chambers and regional superintendencies for decentralized action, although both of these proposals are still under evaluation. Arsesp's legal framework, as a special autonomous body, establishes a fixed mandate, stable management, independence in decision making, as well as administrative and financial autonomy. The agency's budget is covered by 0.5% of the rates charged, and by state budget funds to cover personnel costs. Arsesp's mandate is designed to guarantee legal stability with respect to the norms providing legal security for the contracts signed between agencies and the service providers as well as service quality defined by the goals set in the contracts Arsesp oversees. The agency also sets rates and must establish a system to channel consumer complaints.

According to Brazil's most recent experience and the specialized literature on the topic, both consumers and service companies benefit from regulation, especially since providing infrastructure services requires assets that are amortized over a long term, such as sanitation and electricity. In this way, the service is dependent on decisions of a more technical nature and is less sus-

ceptible to interference from the political sphere. This is achieved by keeping improper political interference at a distance, favoring stability based on rules plus economic and financial sustainability in the delivery of services.

The regulatory scheme of Arsesp is guided by three main principles:

1. Efficiency - rates should reflect the efficient cost of each service and type of client (type, connection, geographic location, volume, socioeconomic conditions). They should send a clear signal as to the cost of supplying these services, providing an incentive to use water rationally.
2. Equality - rates will be determined according to the capacity of each client category to pay. The residential rates will, whenever necessary, have a band of social consumption which guarantees a minimal level of service, compatible with healthy conditions. Costs for connecting new clients should be consonant with promoting universal access;
3. Simplicity - the categories used to classify clients should be simple and easy to explain to everyone in society.

The legislators' decision to create Arsesp under a special, autonomous regime is not meant to undervalue transparency and social control. To the contrary, Arsesp is legally obliged – as part of its mandate – to disseminate all of its administrative actions on the Internet, to hold meetings and public audiences and obey guidance and plans defined in the political sphere. Nevertheless, these obligations have still not fully materialized. Since it was created in 2007, Arsesp has received and transmitted to the state company SABESP over 12,000 client complaints. Most of these had to do with questions about water bills and delinquent payments. During the same period, Arsesp held four public audiences and fourteen public meetings over the Internet.

In summary, water and sewer services provided by SABESP and rates for these services began being subject to Arsesp's supervision and regulation beginning with the new national directives issued for the drinking water and sanitary sector (Federal Law Number 11,445/2007) and the complementary State Law Number 1,025. It was only in 2011 that Arsesp defined the stages of the regulatory process and the event chronogram for making the first rate review. This began with an evaluation of SABESP's assets and a calculation of the compensation base, using a weighted capital cost (WACC) of 8.06%.

It is to be expected that Arsesp's methodology for setting rates will provide accurate projections of SABESP's actual income, a fundamental element to ensure that the company can reach its coverage goals outlined in the investment plan and provide quality services.

Supervision of water quality is the responsibility of Sao Paulo State Environmental Company (Cetesb), which operates the Network to Monitor Surface Water, created in 1974 as a result of State Law Number 118 of

June 29, 1973. This network tries to follow the effects of population and industry growth, including specialization and diversification of industry and agroindustry. The goal is to provide subsidies to water pollution control programs, especially with regard to evaluating water quality at sources that supply the public. When it was implemented, the network had 47 sampling points. By 2012, the basic network had grown, reaching 354 sampling points. This increase has followed the constant demand for more water resources in terms of quality and quantity, a result of the increasing population density and the dynamic processes of urbanization. Aside from the network for monitoring surface water, Cetesb has networks for monitoring subterranean water at 228 sampling stations, 24 stations for monitoring sediments, and 156 points to monitor water conditions at the beaches, covering 140 beaches throughout the state. To increase the reliability of test results and to better track analyses in the entire monitoring system, Cetesb adopted quality control analysis procedures starting in 2000. Subsequently, it accredited its laboratories according to the ABNT NBR ISO/IEC 17025:2005 norm, which establishes general requirements for laboratory quality and measurement test.

Since 1978, Cetesb has released the results of its monitoring of state water supplies in annual reports that cover water quality. These reports have several goals. Aside from evaluating quality levels at the state's water sources, they help define actions to control pollution and improve water quality in rivers and lakes, provide subsidies for developing public policies, and cooperate in applying the tools outlined in the state's water resource policy.

SABESP – A Tool for Sao Paulo's Sanitation Policy

Historical Background

The Sao Paulo State Basic Sanitation Company (SABESP) was established in 1973 to apply the Brazilian government directives that were established in the National Sanitation Plan (Planasa) and executed by what was then the National Housing Bank (BNH). SABESP, as well as all the state sanitation companies, passed through key phase of Planasa, which was characterized by abundant, cheap and long-term funding.

Planasa financed capital investments and aided in developing the state water and sanitation companies. The concession contracts signed with city governments lasted for 30 years, and allowed the service companies to act practically like monopolies in supplying sanitation services to the states. Planasa's economic principle was based on the global viability of the state companies. This included crossed subsidies where large cities paid smaller ones and cheap and long-term loans were granted specifically to ensure financing for the service companies.

When the BNH was closed in 1986 and Planasa shut down in 1992, the financial resources ran out. SABESP had to find an autonomous financing model based on rates and develop an efficient corporate management policy that followed market practices.

As a result, SABESP opened up to private investors in 1994, and in 2002 became the first mixed capital company that joined the new Markets and Futures Exchange (BM&F Bovespa), which is the model for the highest level of corporate governability in Brazil. SABESP shares later traded on the New York Stock Exchange (NYSE). The government of Sao Paulo State, holding 50.3% of shares, is the company's largest shareholder.

With the implementation of a new business model in 1995, SABESP has adopted strategies that essentially cover three areas: market logic, the political and institutional environment and economic and financial viability. Each one of these is based on three concepts that drive company activities: universalization, participation and efficiency. The market logic strategy is directed toward the permanent search for universal coverage by defining and meeting quantitative goals related to supplying water and the collection and treatment of sewage, as well as qualitative goals for improving the quality of these services.

In the political and institutional field, the management of the Assemblies of Municipal Concessionaires, the Regional Management Commissions and the Business Units were strengthened, gaining greater autonomy and agility. The change of focus in the economic and financial management of SABESP was aimed at seeking greater efficiency by using management techniques, a decentralization plan that created Business Units, a diversification of funding and a business model that creates value for the shareholder and the company. One consequence of this new focus was BM&F Bovespa's decision to include SABESP in its Business Sustainability Index (ISE) in 2007. This group includes only companies with a high degree of commitment to sustainability and social responsibility.

SABESP was able to significantly expand its services thanks to its entry into the capital market, greater professionalization of management, rigorous planning and a sound investment program.

Current Situation

Maintenance and expansion work for the area covered by SABESP was carried out under concessions lasting 30-40 years, depending on their economic and financial viability, and in keeping with the sanitation law.

Under this scheme, SABESP directly operates drinking water and sanitation services in 367 of the 645 municipalities in Sao Paulo State, and supplies bulk water to another seven. Among these cities, five also receive sewage services.

The total population that receives drinking water from SABESP is 27.6 million people (3.5 million in bulk, 200,000 in associations and 23.9 million directly), representing approximately 70% of the urban population of

Sao Paulo State. In municipalities not covered by SABESP, the state continues with its role of advancing policies and actions to promote drinking water and sanitation services according to locally designed plans. It also supplies technical and financial support. For example, one of the state's strategies is to reduce the deficit in access to sanitation services in municipalities with less than 50,000 people -- or about 125 municipalities where SABESP does not operate directly and where the largest deficits are concentrated.

To support these cities, the state finances investments in sewage networks and treatment plants under the Clean Water Program. SABESP and the Department of Water and Electric Energy (DAEE), an autonomous state company responsible for managing hydraulic resources, provide technical assistance to municipalities for contracting and carrying out public works. State government action in this type of program contributes to supplying universal sewage treatment to cities that, without this technical and financial assistance, would not be able to develop these works.

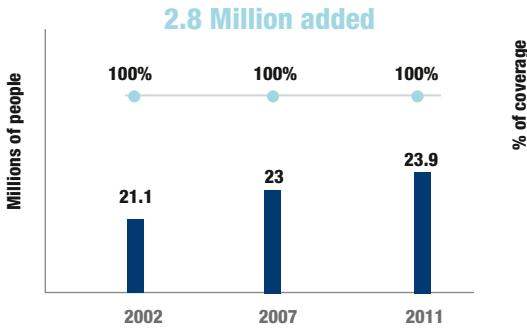
Another example of state policy is supplying sewage treatment to rural communities under the Water Is Life Program. Under this program, the state finances investments in drinking water and sanitation while SABESP builds a simplified drinking water supply system, operates and maintains it, and does the billing. Low cost, innovative, technological solutions are used in these cases since higher cost public works would not be possible.

To recover and protect the dams, rivers, and streams used to supply water to the Sao Paulo metropolitan region, the state government created the New Life/Springs Program, which also works to improve the quality of life for the population that lives close to these water sources. This is a typical example of comprehensive cooperative programs carried out by different governmental agencies, including the state government, under the state's Secretary of Sanitation and Water Resources. This program includes operations in sanitation, urbanization, urban infrastructure, construction of housing, parks and recreational areas in 43 shantytowns (first stage) and unstable housing divisions in the zones around the Guarapiranga and Billings reservoirs. The budget for this program was 1.5 billion reals financed by the federal government, the state government and the municipalities, the Housing and Urban Development Company (CDHU), SABESP and the World Bank. An expansion of this program is being developed which, in a second stage, would upgrade an additional 64 shantytowns.

All these advances made over the last decade are related to a combination of investments. But even more important was the government's political determination and effective planning. In the area covered by SABESP, water supply to stable urban housing is practically universal. Over the last 10 years, more than 2.8 additional people gained access to drinking water, reaching the aforementioned total of 23.9 million.

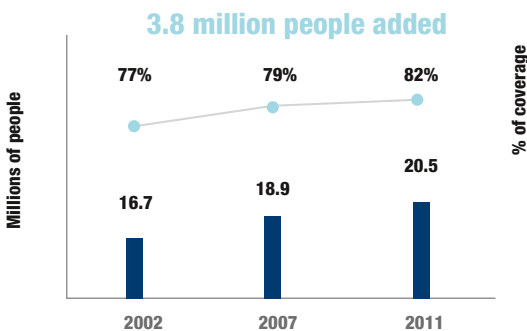
Graphs 7.4, 7.5 and 7.6 show the results achieved between 2002 and 2011, as well as the projection for 2019 with respect to the population supplied with water and collection and treatment of sewage.

Graph 7.4: **Water Supply (% and number of people)**



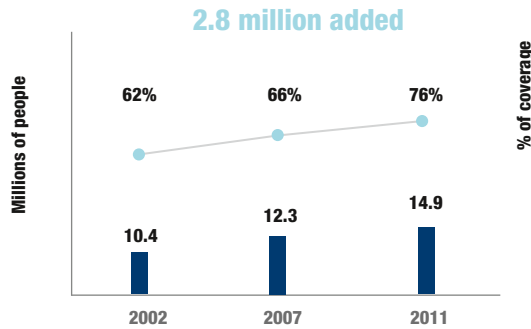
Once we have overcome the challenge of making the water supply universal, more attention is being focused on expanding the collection and treatment of sewage. Between 2002 and 2011, the indicator for sewage collection increased by 5%, which means more than 3.8 million additional people received the service, as shown in Graph 7.5. Currently, sewage service reaches 20.5 million people.

Graph 7.5: **Sewage Collection (% and number of people)**



The indicator for sewage treatment also grew significantly, from 62% in 2002 to 76% in 2011, as shown in Graph 7.6. In population terms it means 4.5 million additional people received sewage treatment services.

Graph 7.6: Sewage Treatment (% and number of people)



In SABESP's second life cycle, beginning in 2007, the company entered a stage where it provided services in a more flexible manner. Laws were promulgated that permitted: (i) renewal of expired contracts, (ii) public - private associations (PPP) and (iii) financing and leasing of assets. Law 1,025 also allows SABESP to associate with the private sector in bidding rounds, set up Specific Purpose Companies (Sociedades de Propósito Específico), create subsidiaries and work in the energy and waste sectors. This flexibility is aimed at achieving greater efficiency in the sanitary sector.

A specific legal structure was set up to renew concessions granted since the time that Planasa was created. In Sao Paulo State, a total of 279 concession agreements were renovated, representing approximately 90% of the company's income. The renovation of expired concession agreements with local or state companies was carried out without bidding, in keeping with the legal norms laid out in the laws covering consortia and sanitation. The state and municipalities signed an agreement called a "Cooperative Agreement." Under this agreement SABESP and the city agree that service will be provided by the public company, under the regulations of Arsesp and linked to an investment plan with goals, performance indicators and provisions for non-compliance.

The Public-Private Partnership is a contract covering the provision of goods or services for no less than 20 million reais. The contract lasts between five and 35 years and is signed between a private company and the federal, state, or local government. In the case of the PPP, the private party is paid either exclusively by the government, or through a combination of rates and public funds. In terms of assets, the private investor assumes the responsibility for executing and financing the project, which then is leased

for a determined period. The PPP and asset financing are thereby alternative ways to accelerate investments using private capital.

Expansions under Municipal Contracts

In 2010, SABESP signed a concession agreement with the state of Sao Paulo and the city of Sao Paulo to provide water and sewage services in the city of Sao Paulo. This contract represented 55% of the company's total income. To make this possible, the state and the city signed an agreement with SABESP and Arsesp, acting as intermediaries and providing a guarantee. They agreed to jointly manage planning and investment in a sanitation system for the city of Sao Paulo. This joint management takes the shape of a Management Council made up of representatives of the state and the city. Supplying the services is the responsibility of SABESP.

Aside from guaranteeing these operations in SABESP's principal market, the association between the state and the city also represents an innovative contractual model that can work for other municipalities in other parts of Brazil where there are several cities that need service. Ownership is not discussed under this agreement, but it nonetheless provides a good base for supplying services. Seven and a half percent of net income earned within the city is transferred to the same city. This additional income can be used for other activities related to environmental sanitation or additional projects under the city's responsibility.

Expansions through Associations with PPPs⁶²

Expansions of areas of activity can also be done through associations with private companies by means of Specific Purpose Companies (SPE). Under this model, SABESP provides water and/or sewage services in four cities: Andradina, Castilho, Mairinque and Mogi Mirim. Using another business platform, "SABESP Environmental Solutions," expansions are carried out for large customers. This platform also covers other programs such as the Rational Use of Pure Water Program (designed for the public sector) and initiatives to reuse water, such as Environmental Aquapolo. Working in association with a private company, this latter project treats 1 cubic meter per second of effluents from the sewage treatment station serving the ABC sectors of Sao Paulo for use in the Capauva Refinery located in the Sao Paulo metropolitan region.

Investments for Universal Service

The investment plans covering the stable areas where SABESP operates are structured to finish the infrastructure needed to supply universal sani-

62. SABESP is also studying new markets and associations both in Brazil and in other countries. It already supplies consulting services covering the rational use of water, as well as commercial and operational activities, in Panama and Honduras. In Brazil, it also has agreements with state sanitary franchisees in the states of Alagoas (Casal) and Espirito Santo (Cesan). It also operates a station for treating industrial effluents and processing iodine.

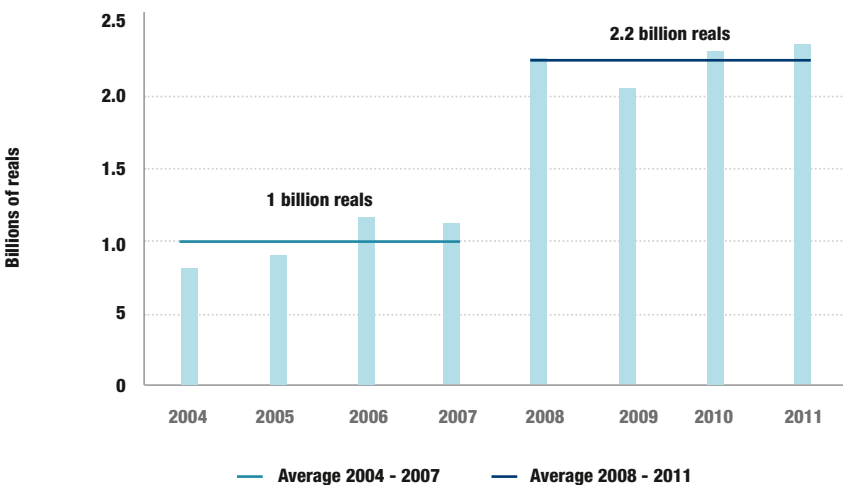
tation services. In 146 municipalities, water and sewage treatment service have already achieved universal treatment coverage. In the interior of the state, universal service will reach all the cities by 2014. In the coastal zone of Sao Paulo, we expect to reach 85% coverage of sewers and sewage treatment by 2016. In the Sao Paulo metropolitan region, this goal will be reached by the end of the decade. Universalization refers to supplying drinking water and sanitation services to urban areas, cities, and districts, but not to the concentrated and dispersed communities that are served by programs mentioned above.

To meet these goals, SABESP has substantially increased its investments. As shown in Graph 7.7, average annual investments between 2008 and 2011 were 2.2 billion reais (at August 2012 values), more than double the annual average between 2004 and 2007 of 1 billion reais. In the coming years, annual investments of almost 2 billion reais are planned to meet the goal of supplying universal services. SABESP's investment plan covers a portfolio of programs, facilitating both investment planning and funding operations. This plan has two basic goals: (i) guaranteeing secure water supply and (ii) building infrastructure to collect, remove and treat sewage.

A Secure Water Supply

In housing located in stable urban areas, water supply has practically reached universal service levels (Graph 7.1). Nevertheless, to have an

Graph 7.7: **Evolution of Investments**
(in billions of reais, updated by the IPCA for August 2012)



idea of SABESP's overall market, it is expected that the population will increase by 1.8 million people by the end of this decade, including vegetative growth.

To ensure a secure water supply, the investment plan includes increases in production, transportation and distribution of water, with particular focus on two programs: the Metropolitan Water Program and the Coastal Water Program.

The Sao Paulo metropolitan region is confronting a serious water shortage. Water coming from the basins that supply the region cannot meet the demands of its population. Currently, peak demand is double the minimum availability, which is 39 cubic meters per second. As a result, SABESP must develop water resources from increasingly distant sources, which has strong physical and legal implications and will carry very high costs. In addition to projects to increase supply of drinking water, SABESP is promoting actions to control demand through programs aimed at reducing water losses, encouraging the rational use of water and producing reclaimed water. These measures help to increase the availability of water, reducing pressure to develop new sources that will have operating costs much higher than the current ones.

Structural Programs for Drinking Water

The Metropolitan Water Program

Goal: Ensure a regular and suitable supply of treated water for the Sao Paulo metropolitan region - RMSP.

Description: Increase water production, transportation and distribution capacity by 13.2 cubic meters per second until the end of the decade. Also make improvements in the quality of treated water and develop systems for treating and final disposal of iodine at water treatment stations.

Investment: 1.7 billion reais beginning in 2006. This will include government funds and financing from the Federal Economic Bank (CEF), which administers the Guarantee Fund for Service Time (FGTS). The latter was created in 1972 to finance popular housing and sanitation, using company funds (8% of the payroll) and financing from the National Economic and Social Development Bank (BNDES).

Model: This program uses public-private partnerships (PPP) of the Alto Tiete Production System and the Sao Lorenzo Production System. The Alto Tiete PPP, concluded in 2011, increased water treatment capacity at the

Alto Tiete Production System from 10 cubic meters per second to 15 cubic meters per second. The Sao Lorencos PPP, whose water gathering zone is 80 kilometers from greater Sao Paulo, will have a production capacity of 4.7 cubic meters per second and will serve a population of almost 1.5 million people. It should go into operation in 2015/2016.

Coastal Water Program

Goal: Increase water production, improve water quality, increase transportation capacity and improve capacity for preserving reclaimed water in the Baixada Santista metropolitan area. This area includes approximately 1.7 million people in nine cities, a population that reaches almost 3 million in the summer.

Investment: Approximately 500 million reais to increase water availability by 3.2 cubic meters per second.

The Corporate Program to Reduce Water Losses and the Program for Rational Use of Pure Water and Reclaimed Water

The corporate program for reducing water losses began in 2009 with the initial goal of reducing losses by 13% in 2019. In 2011, the level of billing losses was 25.6%, compared to the Brazilian average of more than 37%.

The Rational Use of Pure Water Program is aimed at reducing water consumption among the biggest users, especially in the public sector. Currently, the program is being carried out at 2,200 Sao Paulo state and municipal properties. Under these goals, the expectation is to recover a monthly volume of water equal to that which can supply 23,000 people.

Reclaimed water is produced from treating sewage and has restricted uses in industry, in cooling equipment and other applications outside of direct human use. The company is investing to expand the output of reclaimed water. One project which stands out is the Environmental Aquapolo Project, which permits the reuse of water from the industrial sector equivalent to water used by a population of 300,000 people.

Infrastructure for Collection, Transportation and Treatment of Sewage

Developing infrastructure for sewage collection, transportation and treatment is more challenging than supplying drinking water. The market where SABESP operates has geographic and demographic peculiarities. These include a service area covering a vast territory in dispersed localities, an enormous number of small rural cities and intermediate-sized cities,

eventually reaching the Sao Paulo metropolitan area with 20 million inhabitants.

Universal collection and treatment of sewage will allow the recovery and progressive reduction of contaminated runoff into bodies of water. SABESP has been dedicated to reducing pollution in the Tiete River for more than 20 years, since this is the most important structural water program in the Sao Paulo metropolitan region. In the city of Sao Paulo, actions to clean up the Tiete River are complemented by the following programs: Clean Stream Program, Clean Wave Program, which includes sewage programs in the Sao Paulo coastal areas, and other initiatives to provide sewage treatment for low-income communities through the New Life Program, Pro-Connection and Water Is Life.

Structural Sanitation Programs

The Tiete Project

The Tiete River Decontamination (Cleanup) Program (the Tiete Project) began in 1992 and is SABESP's largest investment in sanitation. The program is divided into four stages over 28 years, and the total investment is projected to be USD 4.5 billion. To provide an idea of the scope of this project, the cleanup of the Thames River in London was carried out in two stages over a 70-year period and was started in the 19th Century.

When the project is finished, the infrastructure being installed will be able to treat the sewage generated by 18 million people and will avoid the discharge of 1,030 tons per day of organic waste into the rivers of the Sao Paulo metropolitan area.

The first and second stages, which were finished in 2008, were designed to increase sewage treatment capacity and expand the sewage collection network. When these stages were completed, the index for sewage collection rose from 70% to 84% of the population of the Sao Paulo metropolitan region, while sewage treatment increased from 24% of collected waste water to 70%. More than 8.5 million people in the metropolitan area had access to sewage collection and treatment as a result of this project, which means that the infrastructure built during this 19-year period, would be capable of service a major city like London.

Currently, the project is in its third stage, which began in 2009 and is scheduled to be finished in 2015. During this phase, the sewage network is being expanded in the areas in the periphery of the Sao Paulo metropolitan region, precisely in zones where population growth in recent years was at its strongest and most disorganized levels. Once the third

stage is concluded, the project is expected to be able to collect sewage produced by more than 1.5 million people. With all three stages completed, 11.5 million people in the metropolitan area will have comprehensive sanitation services.

SABESP is now in the process of seeking sources of financing for the fourth and final stage of the Tiete Project. This is the most difficult and expensive part of the overall project, covering areas that include valleys as well as densely and irregularly populated zones, and will require enormous amounts of money, expropriations and re-urbanization.

The goal at the end of the fourth stage is to raise the level of sewage collection to 95% of the population by 2018 and 100% by 2024 for the cities in the metropolitan region where SABESP operates.

The Clean River Program

A project specifically directed at the city of Sao Paulo, the Clean River Program complements the Tiete River decontamination work and is being developed in conjunction with the city. The goal is to clean up the bodies of water in the area by improving the sewage system and eliminating the discharge of raw sewage into these rivers.

It also covers cleaning up the shores and edges of the rivers and streams, and removing and relocating houses built along the edges of the rivers.

Between 2007 and 2011, 103 rivers in the capital were cleaned up, benefitting 1.7 million people. During 2012, the goal was to clean up 45 rivers and streams, benefitting another 700,000 people.

The Clean Wave Program

This project includes cleaning up the rivers and canals along the coastal region of the state and improving the beaches and beach areas. Doing this will promote tourism and generate more regional jobs. In Baixada Santista, work was started in 2007 and completed in 2013. As of 2011, 1.6 billion reals had been invested in the project. SABESP is working on the second stage of the Clean Wave Program, which aims at collecting and treating sewage in all the cities of Baixada Santista by 2018.

The program also will carry out specific actions in the state's Northern Coast. The goal here is to increase sewage collection and treatment in the cities of Caraguatatuba, Ilhabela, Sao Sebastiao and Ubatuba from the current level of 49% to 85% in 2015, with investments of 500 million reals. It is important to remember that before the program was initiated, only 30% of the population had access to sewage collection and treatment. About 600,000 people will benefit from these investments, including residents and tourists.

The New Life Program

This was set up to recover and protect dams used to supply water to the Sao Paulo metropolitan area and involves interventions in 43 shantytowns in the sub-basins of the Guarapiranga and Billings Reservoirs and will benefit 50,000 families. SABESP's responsibility in this project is to expand and improve the water and sewage system. The program is expected to be completed by 2015, with a total investment of 1.3 billion reais using funds from SABESP, federal, state and local governments, CDHU and the World Bank.

Financial Sustainability and Universal Services

SABESP is determined to add value to the water business in Sao Paulo and at the same time provide universal sanitation services in the areas where it operates. For this reason, the company focuses on sound financial management.

The market has recognized the company's efficiency and performance throughout the years. In 2011, Standard & Poor's raised the global credit rating for SABESP from "BB" to "BB+" and increased its national rating from "brAA" to "brAA+." This means that SABESP's risk rating fell, thus allowing the company to borrow money at lower interest rates.

At the end of 2011, 75% of the investments planned for 2009/20013 – about 6.5 billion reais – had already been obtained. The company actively manages its cash flow and constantly sets a high priority on obtaining funds at the lowest costs for sanitary projects. Also, by extending loan maturities the company stretches out repayments and minimizes pressure on its cash flow.

Universal services imply massive investments to build the infrastructure needed to expand and improve sanitation services. For SAESP, sound management and optimized use of assets are fundamental. The company began using the value added model in 2009 and it permits executives and managers to have a detailed view of what's happening in their areas of operation, thus helping to optimize the asset base and continuously improve results.

Conclusions

To end this chapter, it will be useful to offer some final thoughts on the course Sao Paulo State has taken to provide universal drinking water and sanitation services. To do this, we should think about three questions that can provide some lessons:

What is the current situation regarding drinking water and sanitation in Sao Paulo State and in Brazil?

Did the state of Sao Paulo and SABESP adopt appropriate policies after Planasa was shut down?

Is the current model for managing and financing universal services sustainable?

In the first place, the progress achieved in the drinking water and sanitation sector over the last 50 years is very favorable, despite the mistakes made on the road to universal services and the challenges yet to be overcome. Supplying drinking water to more than 150 million people and providing sanitation services to over 100 million has been a monumental task, by any analysis. This is even more impressive when compared to countries in the developed world, which required 150 years to achieve similar results. During just the last five decades, the pressure from demographic and urban growth drove an accelerated expansion of infrastructure, the creation of new institutions, the development of human capital and the use of large sums of money. Of course, there are still important challenges: increasing service to the disadvantaged groups living in urban and rural areas, and reversing the intolerable environmental degradation and water pollution that affect health and the quality of life in general. These are the two main ideas that underscore the challenges Sao Paulo State faces in the coming years.

To return to the theme of supplying drinking water and sanitation services to Sao Paulo State and Brazil in general, it is important to recall that Planasa was the product of the spirit prevailing during the period called the “Brazilian economic miracle.” While this plan had some unquestionable merits, it collapsed along with the breakdown of the economic model under which it was created (Turolla, Barat, Arretche).

The financing plan was based on money from the public sector pension fund (FGTS) and government financial transfers (FAE), both of which were highly dependent on the level of economic activity. The flow of funds into the FGTA was very sensitive to wages of public sector employees, which in turn were affected by the real average wage and the level of employment. Moreover, withdrawals from the FGTS grew as unemployment rose. Thus, in a recessionary environment, not only did contributions to the fund decrease, but also the flow of resources available for loans declined.

In addition, the Planasa model was based on the premise that, in time, the state sanitation companies would become financially self-sufficient as they increased their scale of activities, became more efficient and obtained sufficient rates for their services. While the scale of their activities grew, efficiency and rates did not live up to the original plan.

In many cases, rates never reached levels where they could be used as a tool to control inflation. As inflation increased, rates allowed the companies to cover costs, and consequently could not stay financially sound. As a result, the service companies had to reduce spending and service quality deteriorated. The collapse of the Planasa model, then, was inevitable due to

the service companies' limited capacity to pay, their maturing debt and the absence of any new financing.

With the failure of the model that sustained Planasa, SABESP opted for private sector investments to guarantee its public duty, breaking with the false notion that the sanitary sector could not use private funds to achieve public goals. This path has had its favorable elements. But in the future, some course changes will be inevitable. Nevertheless, there is a solid foundation for future success, based on social acceptance and market realities. And nothing will distract Brazil from the course it has taken.

The goals established for the coming years are very ambitious and very difficult, in terms of technical complexity, costs and their social and environmental implications. To achieve these goals, it will be necessary to increase the pace of investment in the sector to more than 2 billion reais per year.

According to 2010 figures, SABESP's rates have lagged in comparison to those of other sanitary companies in the country, and the breach may have widened considerably in the last two years. Under this scenario, the great challenge for public policy will be to readjust rates in keeping with efficiency indices and optimized investment plans. The company will need wise regulatory decisions backed by broad civil society participation so that they will be politically viable.

So, we return to our initial thoughts. Sustaining universal services is a critical expression of development that redeems the fundamental aspirations of society. They are the result of political consensus that is never easy to attain. For that reason, what is required is a sectoral planning policy supported by the central government that includes goals, a sound financing policy and incentives for efficient operation through regulation. In addition, the sector needs well-structured, innovative service companies that look for the best technological solution for each specific demand situation and that employ the best business practices to manage their operations and their assets. All of this must occur in an environment that includes widespread consultation with citizens and their active participation. These are the bases for universal sanitation services in Brazil and anywhere else.

Agenda for a Dialogue on Universal Access to Water Supply and Sanitation

- **Invitation to a Regional Dialogue on Drinking Water and Sanitation Services.** The purpose of this second publication in the Reflections Series is to contribute to the regional dialogue on equality and social inclusion policies as they relate to the water supply and sanitation sector. This dialogue will be fruitful as long as it is based on empirical evidence, analytic studies and an evaluation of the lessons we learned from the concrete experiences of Latin American countries. In the same way, this dialogue should be carried out within different political contexts and management models that make up public policy, as well as within different concepts of the government's role in social and economic policy. The timing for this publication could not be more propitious, since it ties together the regional imperative for equality and social inclusion, the obligation to comply with the mandate for implementing the human right to water supply and sanitation services and the region's experiences in public policies directed toward universal access to such services. Hopefully, this dialogue helps to advance the common desire to achieve universal drinking water and sanitation services in the region.
- **Taking Advantage of a Historic Opportunity in Latin America.** It has been many years since the region has seen a period of continuous economic and political stability as it is enjoying today. This is evident from the region's relatively high levels of economic growth and the existence of democratic governments for more than two consecutive decades. Despite the important advances that have been made in reducing poverty and inequality, Latin America is still considered the region with the

world's greatest levels of inequality. Although it must be recognized that, in recent years, it is the only region that has been able to reduce inequality in the majority of its countries, as indicated by the Gini coefficient. This book is centered around the historical opportunity that Latin America has to close the infrastructure and governance gap. As a result, public policies are being proposed that are built on the advances made in recent decades, assigning the highest priority to solving the problems of inequality and the severe deficiencies related to social inclusion that characterize the region.

- **CAF's Strategic Goals in the Region.** CAF's vision for remedying these problems includes four strategic goals. The first is to provide a greater number of people with the benefits of development through policies of equality and social inclusion that generate an environment of peace and social adhesion. The second goal is to generate suitable conditions for investment and growth through macroeconomic stability. The third is to stimulate productivity, competition and added value in regional production by providing incentives for microeconomic efficiency. And the fourth goal is to achieve a healthy and balanced environment that ensures a rational use of natural resources and preserves the rights of future generations.
- **Social Policy, Human Rights and Focused Subsidies.** The debate over social policy in recent decades has revolved around two contrasting visions. One defends access to social services and basic public services as citizen rights and links social policy to the principles of universality and solidarity that are inherent in these rights. The other vision stresses focusing government subsidies on the poorest sectors of the population so that they have access to these services. These two visions are not entirely antagonistic since universalization of services can (and should) include focused subsidies as one of its tools. Nevertheless, the first embraces a comprehensive vision of government action in supporting equality while the second starts from a rather residual concept of public responsibilities. The first seeks to avoid segmentation in providing social and public services, while the second in a way promotes segmentation by defining access to the poor in different ways than to the general public. Moreover, although both visions are consistent with the possibility of providing the services through public-private programs, however, those who stand for the first vision favor services delivered by the government.
- **Economic Rationale and Subsidies.** One of the greatest risks of focused subsidies is contributing to an accentuated segmentation in de-

delivering social services, which tends to be characteristic of highly unequal societies, like those in Latin America. The evidence shows that the best way to focus is to follow a policy of universal access to services and social benefits. Thus, from the point of view of economic rationale, it makes sense to use money from government's budget to subsidize investments that directly affect the environment (like stormwater drainage systems) or the environment in general (like protecting water sources and building sewage treatment plants). One part of these investments can be financed with taxes on urban property (real estate taxes or taxes on property value) and/or through surcharges on water supply and sanitation services used by high-income families and companies. In addition, subsidies should be used to finance investments associated with connecting low-income families to the water supply and sanitation system, since these are very costly in relation to their capacity to pay.

- **Increased Coverage of Drinking Water and Sanitation Services since 1950.** Access to drinking water and sanitation services has increased significantly in recent decades. On average, coverage for these services grew from 40% of the population in 1950 to more than 90% in 2008. This represents major efforts in investment and development of institutional capital, providing more than 300 million urban dwellers with access to water systems and more than 200 million people with access to sewage systems during the same period. Nevertheless, in spite of the high levels of access to these networks, services at many urban homes are poor due to low quality of water and a lack of continuous service seven days a week and 24 hours a day.
- **25% of the Urban Population Still Receives Low Quality Services or None at all.** In spite of the advances seen from international statistics of the region, 25% of the urban population of Latin America still lack these services or receive them on an irregular basis. This situation means that water quality is often bad, pressure in distribution systems varies, these systems often are not connected to communities, and there are poor or non-existent systems for collecting, treating and disposing of sewage. Moreover, the majority of cities have major deficiencies in their stormwater collection systems and are experiencing increasing environmental degradation, which has a direct impact on protecting the health and viability of water sources, affecting human health and well-being and the overall quality of life of the population.
- **Two Types of Service, Two Types of Citizens .** In practice, this situation creates two types of citizens: those who receive good quality water supply and sanitation services, often comparable with cities in Europe

and North America, and those who receive poor quality and limited service or none at all. The consequences of this type of discrimination are health risks that cannot be separated from the condition of housing, overcrowding, homes that depend on irregular supplies of water and a general lack of hygiene – all forming part of low quality public services. The steady degradation of the environment directly impacts people's health, especially that of children, and leads to deterioration in the service infrastructure and to physical structures in general, affecting the quality of life for society, as well as general productivity in the economy.

- **Investments to Provide Universal Service Represent 0.31% of GDP.** CAF has estimated that the deficit in universal urban water supply and sanitation service networks could be covered by 2023 by investing \$12.5 billion each year, which is equivalent to 0.31% of the region's GDP in 2010. This level of investment would allow the region to achieve universal water supply and sewerage service of an adequate level of quality, as well as an appreciable increase in coverage of sewage treatment, stormwater drainage systems and increased water supply capacity. This would also include upgrading service networks in poor urban areas and the renovation and repair of existing assets.
- **The Ethical Dimension of the Human Right to Water and Sanitation Services.** The United Nations resolution on the right to water and sanitation services is not simply one more obligation derived from international law. This resolution requires countries to adjust their laws and regulations to facilitate the application of strategies that lead to universal water supply and sanitation services, in order to fully respect the mandate. Nonetheless, it will not be possible to achieve this goal by using only the traditional tools of public policy. It must be recognized that people have not reached this disadvantaged situation, lacking basic services or receiving them sporadically, due to only one shortage, but rather due to a variety of shortages. As a result, providing universal access to water supply and sanitation services requires a different approach within a comprehensive concept. For example, it is not possible to have good quality water service in a home that does not have equipment that can connect properly with the water network.
- **Legal and Regulatory Implications to Applying the Human Right to Water Supply and Sanitation Services.** Universal access to water supply and sanitation services requires constitutional measures that clearly and precisely express the government's political will, identify the areas of responsibility and obligations of different government agencies at different levels and the obligations and powers of agencies in charge of economic regulation. A specific law is needed to design a universal plan

for water supply and sanitation. This law must translate the political will and obligations related to achieving universal service into specific legal mandates. The plan should explicitly define the scope of obligations of each administrative authority and specify the consequences for non-compliance. The law should also combine the universalization obligation with the existing framework of legal, business and regulatory systems regarding water and sanitation services. Concretely, it should define the obligations, tools and functions of regulators to facilitate, demand or sanction the effective execution of the universal service mandate. Only by means of a previously approved legal mandate can the regulation and control authorities issue obligatory orders and instructions to the regulated parties and effectively supervise, control and sanction them in a timely fashion.

- **The Sanitary Revolution in Chile: The Figures Speak for Themselves.** Chile has 100% coverage of water supply, 96% coverage of sewerage systems and 90% coverage in sewage treatment. This has come after a long and arduous path that included public policy reforms in the water supply and sanitation sector stretching over 25 years. These reforms are based on a clear and effective regulatory framework under which the government works to promote efficiency and ensures that the population has access to these services. By creating the Superintendency of Water and Sanitation Services in 1988, the government gave a clear sign that the regulatory role would have precedence over business functions. One very important aspect of the regulatory framework was replacing a general subsidy with a subsidy for the country's low-income families. This was done via a direct subsidy to pay for the use of sanitation services and is administered by municipalities. This system, a direct, demand-side subsidy, is possible because of Chile's prolonged economic growth, orderly public finances and a progressive decline in poverty. To achieve this, Chile had the political will to establish a transparent system of subsidies with little or no political interference and, at the same time, demonstrated capable management in public administration.
- **The Sanitary Revolution in Chile and Private Sector Participation.** Chile found it impossible to make the necessary investments in the water supply and sanitation sector by itself, since it would have put the country in debt. The problem was not just financing, but in management of the sector: It was time for a major change, moving from government as a business manager to government as a regulator. The goal was to attract capital and technology from the private sector. Up to that time, the sector had been managed – with very few exceptions – by the government. But Chile had to establish new priorities and find private

capital from any sectors that were capable of providing it. In this way, the country was able to focus much more on social investments. For that reason, the government decided to transfer operations of water utilities to private hands. This decision was seen by some as extremely risky, because it was feared that private sector management of this basic industry would result in unacceptable high rates for users, or that no one would be interested in making the large investments that the country needed because the companies would have high levels of sunk costs. But in choosing this model, Chile believed that, in many infrastructure sectors, private investors could be more efficient, supply more funds and better technology, while at the same time de-politicize public services. Moreover, Chile wanted to modernize, and this idea is not compatible with pollution in rivers, lakes and beaches because the country cannot treat its sewage, or the fact that thousands of Chileans were not served by sewers. Therefore, the reduction in the government's role in building infrastructure had to be accompanied by actions that provided incentives to private sector investment, and these took the shape of an active policy of associations, stimuli and guarantees.

- **Social Demand and Universal Services in Sao Paulo State.** One lesson learned on the road to universal services in Sao Paulo State was that these services are a primary consequence of society's demands and the building of political consensus. These services are not the result of the voluntary participation of experts in sanitation, or actions financed by generous government budgets. These demands come from the poorest members of society who have seen their income grow, thus stimulating economic activity and increasing pressure for better public services. This favorable evolution in income is directly related to the government's social policy. The government invests in the most vulnerable areas of the population, developing programs that improve the quality of life, provide professional training, generate income and provide access to education, health and sanitation.
- **Public Policies and the Goals of Universal Services in Sao Paulo State.** To finance development of water supply and sanitation services, rates are the central concept. Sao Paulo State's priorities are to maintain the high levels of water service coverage already attained, increase efficiency in the existing systems and provide service to social sectors that have poor or limited service or lack service altogether. These people often live in isolated communities and in risky areas that have been settled by squatters. In recent years, investments have been concentrated in sewerage systems and sewage treatment plants, and the goal is to achieve universal coverage in many part of the state's country side by

2014. By 2020, the state plans to cover the Sao Paulo metropolitan region. The state has begun an ambitious program to clean up polluted water sources and protect them through comprehensive measures that include sewage treatment, cleaning up environmentally degraded urban areas and direct cleanup programs for rivers, lakes and beaches.

- **Management and Universal Services in Sao Paulo State.** The Sao Paulo State Basic Sanitation Company (SABESP) was set up in 1973 under the direction of the National Sanitation Plan (PLANASA), which at that time was the state's main sanitation authority. SABESP today serves 27.6 million people in 367 of the 645 cities in the state via 30-year concession contracts. In return, SABESP makes a payment to each municipality and investments are financed through rates, borrowing by SABESP and government payments for specific programs. In 1994, SABESP became a mixed capital company. The State of Sao Paulo holds 50.3% of its shares. In 2007, ARSESP was established as the sector's regulatory agency and this represented a major change in SABESP's field of action. As a result, SABESP was managed by an autonomous agency that regulated, controlled and supervised the sanitation sector. ARSESP also had a duty to ensure that service companies were remunerated adequately to maintain the financial sustainability of the sector. Average annual investment in the sector has increased substantially between 2008 and 2011, reaching USD 1.1 billion, or double the annual average investment between 2004 and 2007. The effectiveness of this strategy has been confirmed by the market, which has reduced SABESP's risk rating and therefore lowered interest costs on money the company borrows for investment.
- **An Analytic Agenda for Achieving Equality and Universal Water Supply and Sanitation Services.** In order to have an impact, the regional dialogue proposed by CAF on equality and the water supply and sanitation services sector must be built on empirical evidence, analytic studies and an evaluation of lessons learned in Latin America and other parts of the world. The chapters of this book put forward ideas and suggestions that could well be converted into an agenda of options for the region, with ideas focused on a group of countries with common interests, or on alternatives for countries with specific needs. To make progress under these terms requires the cooperation of other international agencies, regional research and study centers, in close cooperation with governments and consultations with civil society. To enrich the sectoral thoughts this book wishes to promote, here are some suggested elements for the agenda:

 - **Information Systems.** As has been mentioned repeatedly, the absence of trustworthy information on the extensive issues related

to water supply and sanitation services is the norm in practically all countries in the region. The exceptions are Brazil, which has an extensive body of national information on its broad range of service providers, and countries with national regulatory agencies (specifically Chile, Colombia and Peru). The uncertain nature of sectoral information has an impact on several fronts – on the public that receives information about the quality and efficiency of services and on the statistics and indicators that are needed in making decisions on formulating and advancing public policies, among others. Countries that assign priority to this topic could adapt the systems developed in Brazil to develop their own national data banks on the performance of service companies, and combine them with benchmarking systems already partially in use in the region, such as IBNET (sponsored by the World Bank) and Aquarating (sponsored by the Inter-American Development Bank). Another important task is developing standards and methodologies for trustworthy and comparable regulatory accounting systems. For many years, this has been a priority of the association of regional regulators (ADERASA).

- **Strategies and Plans for Universal Services.** Developing and updating national strategies and plans that lead to universal services in the shortest possible time, at the lowest cost and producing the greatest impact are priority tasks for governments. One element in the plan is to prepare the legal and regulatory systems to carry out the mandate. Another is to facilitate comprehensive urban planning and expand and improve basic public services to households. Also, governments should determine which investments, programs and actions will have the greatest impact. Regarding this last point, studies on health costs as related to the lack of water supply and sanitation services or poor quality services of this type could provide guidelines for setting up the best sequence of actions to be taken and the best use of resources. Studies of this type have been done in several countries, and have produced useful results. They also can be used to support and direct public policy actions in areas such as investment and subsidies.
- **Financing and Subsidies.** The region has experience using subsidies for water supply and sanitation that are of worldwide interest. This is the case in Chile and Colombia. But other countries have less structured systems that are nonetheless useful for evaluating their impact. An inventory of these experiences and lessons, with emphasis on their impact, possibilities for duplication and their

scalability would be of great interest for countries in the region. The lessons learned from these different systems could be used to design subsidy schemes adapted to the conditions and to the legal and institutional mandates of each country. Another area of interest is determining the cost of inefficiency in providing services in each country by making comparisons with regional and international standards, and using methodologies that identify the “hidden” costs of supplying water supply and sanitation services. These methodologies have been developed by the OECD and are applied in Eastern European countries and in Africa. Finally, public spending on water can be reviewed using the conceptual and operational tools of the so-called Public Expenditure Reviews, which are used routinely in many nations. These studies could help determine the efficiency and efficacy of public spending on water supply and sanitation, as well as its distributive impact.

- **Toward an Agenda for Regional Cooperation** These areas of analytic study could benefit from effective promotion of South-South cooperation among the nations of the region and others outside the Hemisphere that confront similar challenges and follow similar agendas. With these ideas in mind, CAF wishes to play a strategic role and facilitate progress among its members and development institutions.

Bibliography

- ADERASA (Association of Water and Sanitation Regulatory Entities of the Americas). (2010). *Benchmarking Report*.
- Albuquerque, C. (2011). *On the Right Track. Good practices in realizing therights to water and sanitation*. Lisbon: ERSAR (The Water and Waste Services Regulation Authority).
- Arretche, M. (1999), “National Sanitation Policy: The Restructuring of State Companies”, in Special Themes – Infrastructure.
- United Nations General Assembly. (2007). *Annual Report of the United Nations High Commission for Human Rights on the scope and content of the obligations related to equal access to drinking water and sanitation services imposed by the international instruments on human rights*. A/HRC/6/3 of August 16.
- Barat, J. (1996). *The Challenges of Environmental Sanitation*. O Estado de Sao Paulo.
- CAF (2007). *Infrastructure and Inclusion in Latin America*. Caracas: CAF.
- CAF (2010). *Social Policies To Promote Citizenship and Social Cohesion*. Caracas: CAF.
- CAF (2010) *Vision for Latin America 2040. Toward a more inclusive and prosperous society*. Caracas: CAF.
- CAF (2011). *Infrastructure in the comprehensive development of Latin America. A Strategic Diagnosis and proposals for a priority agenda. Potable Water and Sanitation*. IDEAL 2011. Caracas: CAF.
- CAF (2012) *Drinking water and sanitation in Latin America and the Caribbean: realistic goals and sustainable solutions. Proposals for the 6th World Water Forum, Marseille, France, 2012*. Caracas: CAF.
- CAF (2012). *Public finances for development: strengthening the relationship between income and expenses. Report on the economy and development*. Caracas: CAF.
- CELADE (Latin American & Caribbean Demographic Center). (2009). *Demographic Bulletin*. Santiago: ECLAC.
- ECLAC. (1998). *The fiscal pact: strengths, weaknesses, challenges*. Santiago: ECLAC, ECLAC books, No. 47.

- ECLAC. (2007). *The Social Panorama in Latin America 2007*, Santiago.
- ECLAC, CAF (2009). *Poverty and precarious urban communities in Latin America and the Caribbean*. Santiago: United Nations.
- ECLAC. (2010). *Annual Statistics Report*.
- FANCA (Central American Water Action Network). (2012). *The Human Right to Water and Sanitation*. San José.
- Foster, V. (1999). *Utility Reform in Latin America*.
- Grynspan, R. “Basic Universalism and the State: principles and challenges”, in Molina (ed.), op. cit. chapter 3.
- Horward, G. y Bartram, J. (2003). *Domestic Water Quantity, Service Level and Health*. World Health Organization.
- Horward, G. y Bartram, J. (2003) “Progress in Sanitation and Water”. WHO.
- IADB, UN Habitat. (2011). *Access to Drinking Water and Sanitation for everyone and the Human Right to Water in the Americas Region*. Washington: IADB.
- Korpi, W. y Palme, J. (1998). “The Paradox of Redistribution and Strategies of Equality: Welfare State Institutions, Inequality and Poverty in the Western Countries” in *American Sociological Review*.
- Marshall, T.H. y Bottomore, T. (1992). “Citizenship and Social Class”, in *Citizenship and Social Class*. London: Pluto Press.
- Méndez Sayago, John Alexander y Johanna Mildred. (2011). “Simulation and Evaluation of a proposal to implement the minimum vital supply of drinking water in Colombia”, in *Economic week*, volume 14, No. 29 ISSN 0120-6346. Medellín.
- Ministry of Finance of Chile. (1998). *Subsidy Law N°18.778 and Regulations, Supreme Decree N°195*. Web: www.siss.gob.cl/577/w3-propertyvalue-3556.html.
- Minsky, H. *Stabilizing an unstable economy*. New Haven: Yale University Press.
- Molina, C. (ed.). (2006). *Basic Universalism: A new social policy for Latin America*. Washington, D.C.: Inter-American Development Bank and Editorial Planeta.
- United Nations. (1976). *International Pact on Economic, Social and Cultural Rights*.
- Ocampo, J. (2004). *Rebuilding the future: globalization, development and democracy in Latin America*. Bogota: ECLAC and Norma.

- Ocampo, J. (2005). *Economics and Democracy*. Washington: IDB.
- Ocampo, J. (2008). “The concepts of social policy: Universalism versus focalization”, *New Society*, May-June, p. 44.
- Ocampo, J. (2010). “Universality and social policy”, in *Social policies to promote citizenship and social cohesion, Reflections on social and environmental policy, Year 1, No 1, chapter 3*.
- Oliveira, G. (2011). *Cultural Transformation in Large Corporations: Sustainability, Regulation and Focus on the Client – The Case of SABESP*. SABESP – Sao Paulo: Edição Brasileiro.
- United Nations (1968). *Proclamation of Tehran. Declaration 13*.
- World Health Organization, UNICEF. (2010). *Progress in Sanitation and Water. Updated Report*. Paris: WHO.
- Panamerican Health Organization. (2011). *Water and Sanitation: Evidence for public policies focused on human rights and public health results*. Washington, D.C.: PHO/WHO.
- Perrella, Danilo Bermudes; Prioli, Paulo Sérgio y Simoes, Neuza Maria. (2011). *The economic business development of SABESP sustained by modernizing the management model*. Rio de Janeiro: Brazilian Association of Sanitary and Environmental Engineers; AIDIS. Environmental Sanitation: Challenge for the 21st Century. ABES, p.1-17 Ilus., tab.
- United Nations Development Programme. (2004). “Market, social cohesion and democracy” in *Democracy in Latin America: Toward a citizens’ democracy*. Buenos Aires: Aguilar, Altea, Taurus, Alfaguara S.A.
- United Nations Program for Human Settlements, UN-Habitat, *State of the cities in Latin America and the Caribbean 2012* (2012). Brazil.
- SABESP – Sao Paulo State Basic Sanitation Company. (2011). Report on Sustainability. SABESP.
- Sanjuan, A. (2012). *Mimeograph on security in Latin America*.
- Sen, A. (1999). *Development as Freedom*. New York: Random House.
- Snow, J. (1999). *On the transmissison of cholera*. Sao Paulo-Rio de Janeiro: Second Brazilian Edition, Hucitec-Abrasco.
- SSE – Secretary of Sanitation and Energy of the Government of the State of Sao Paulo. (2007-2010). Sao Paulo’s Leadership in Sanitation and Clean Energy.

EQUALITY AND SOCIAL INCLUSION IN LATIN AMERICA: UNIVERSAL ACCESS TO WATER AND SANITATION

CAF is a multilateral financial institution, whose mission is to support sustainable development and regional integration in Latin America. The Institution's shareholders are the following: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Jamaica, Mexico, Panama, Paraguay, Peru, Portugal, Spain, Trinidad & Tobago, Uruguay, Venezuela and 14 private banks within the region.

The Institution serves the public and private sectors, providing a variety of products and services to a broad portfolio of clients, including shareholder states, private companies and financial institutions. Social and environmental benefits are at the core of the Institution's management policies, and it strives for eco-efficiency and sustainability in all its operations.

As a financial intermediary, CAF channels resources from international markets to parties in Latin America, promoting investments and business opportunities.

- SSRH - *Secretary of Sanitation and Energy of the Government of the State of Sao Paulo*. (2011).
- *The Hydraulic Resources Situation in the State of Sao Paulo – Base year 2009*. SSRH/CRHi.
- Stiglitz, J. (2012). *The Price of Inequality*. New York: W. W. Norton & Company.
- The World Bank. (2008). *Key Topics in Public Water Utility Reform*. Washington: The World Bank.
- The World Bank. (2008). *The World Development Report. Reshaping Economic Geography*. Washington: The World Bank.
- The World Bank. (2011). *Utilities Databook*. Retrieved from IBNET.
- Washington: The World Bank.
- The World Bank, WSP. (2011). *The IBNET Water and Sanitation Performance Blue Book*. Washington: The World Bank.
- The World Bank. (2000). *World Development Report. Attacking Poverty*. Washington: The World Bank.
- Turolla, F. (2002). *Basic Sanitation Policy: Recent Advances and Future Options for Public Policy*. Brasília: Text for discussion, v. 922.
- UNDP. (2000). *Human Development Report*. New York: Earthscan.
- UN Habitat. (2009). *Global Report on Human Settlements*. London: Earthscan.
- UN Habitat. (2009). *Global Urban Observatory*.
- UN Joint Monitoring Program. (2010). *Progress on Sanitation and Drinking Water*. Update.
- United Nations. (2012). *The Millennium Development Goals Report 2012*. New York: United Nations.
- Vargas Lola, M. (2007). “*The Smell of Poverty*”. Piauí Magazine, Edition Nº 5, urban dossier.
- Watkins, K. (2006). *The Human Development Report 2006. Beyond Scarcity: power, poverty and the global water crisis*.
- World Health Organization. (2010). *GLAAS 2010. UN-Water Global Annual Assessment of Sanitation and Drinking-Water*. Geneva.
- World Water Forum. (2011). *VI World Water Forum*.